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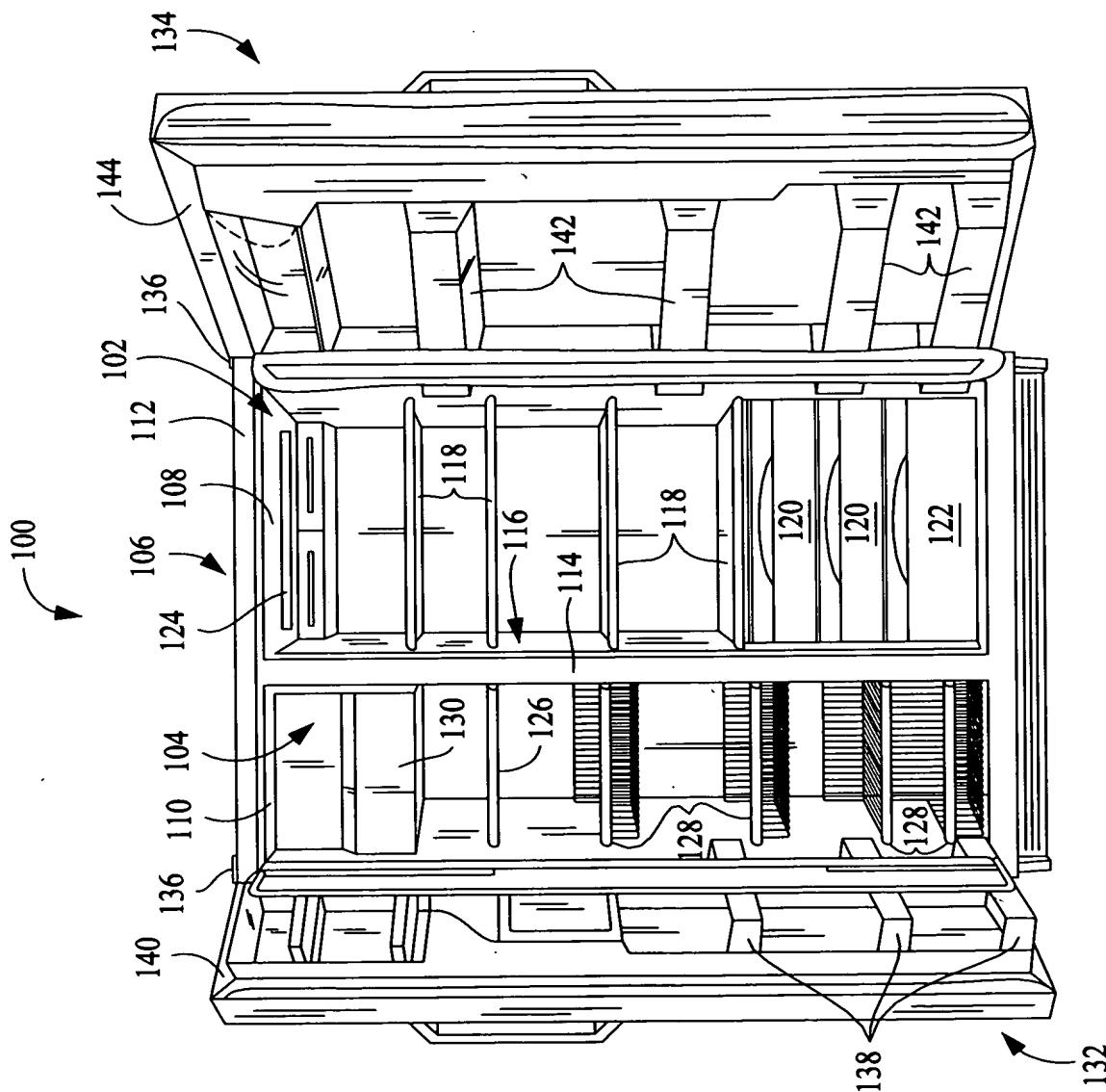


FIG. 1

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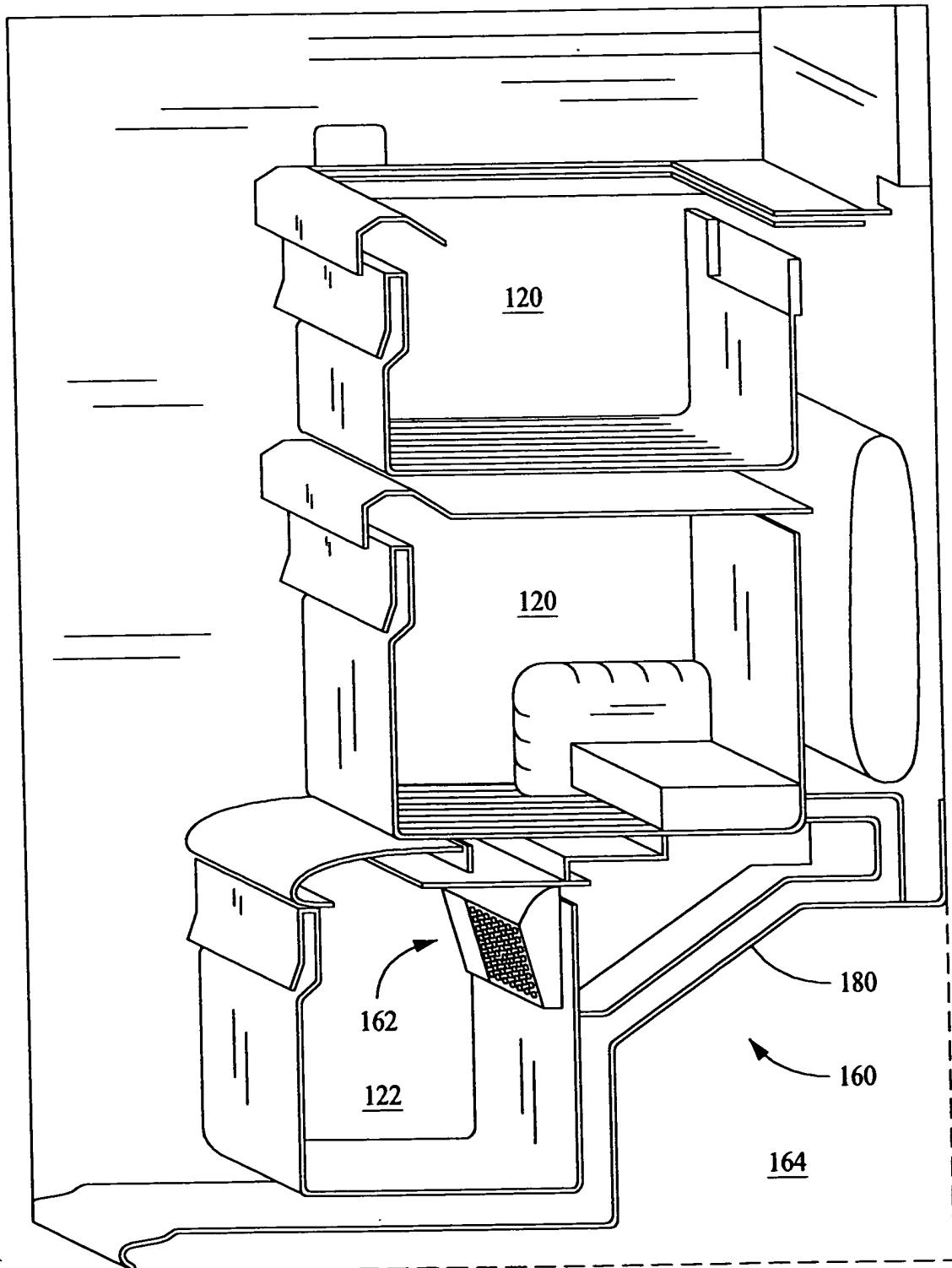


FIG. 2

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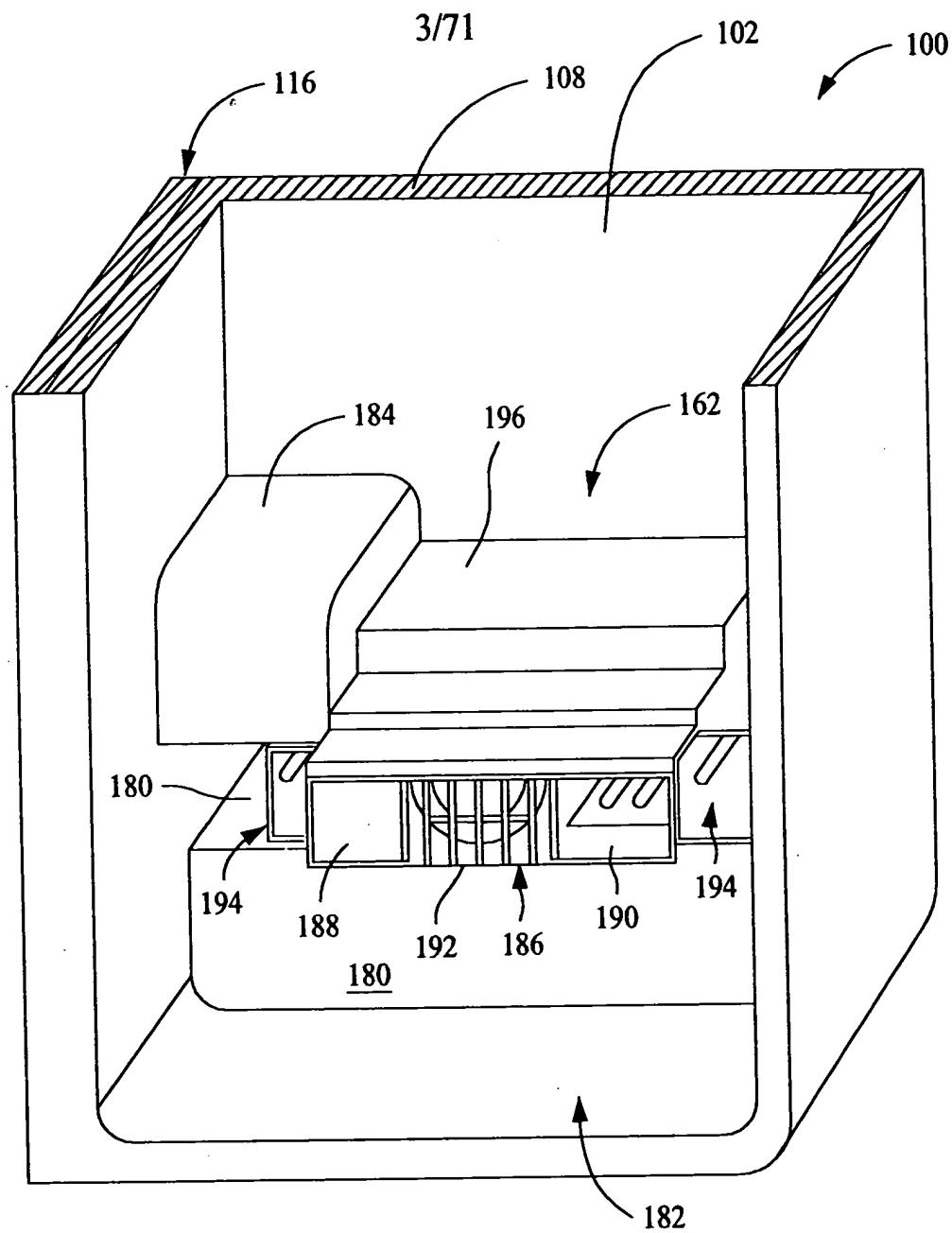


FIG. 3

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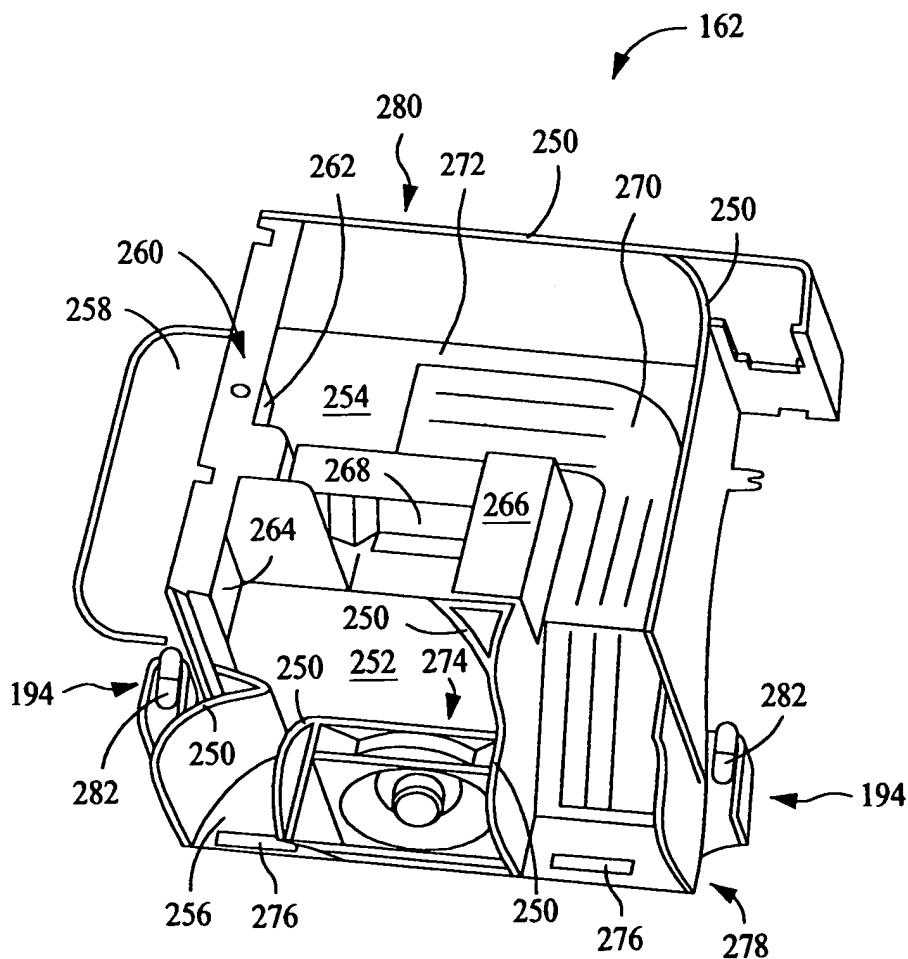


FIG. 4

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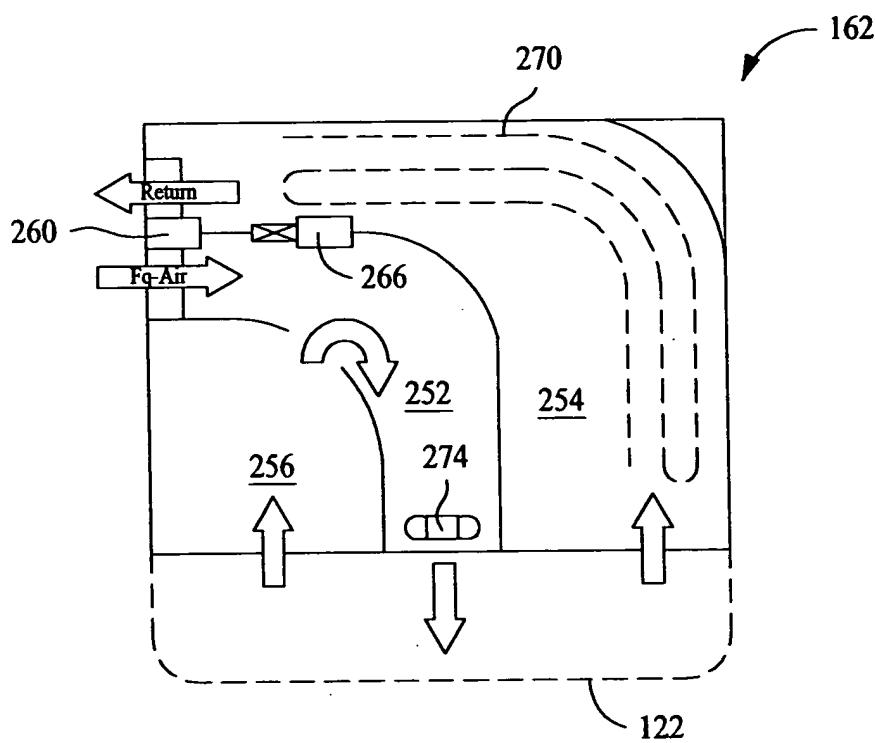


FIG. 5

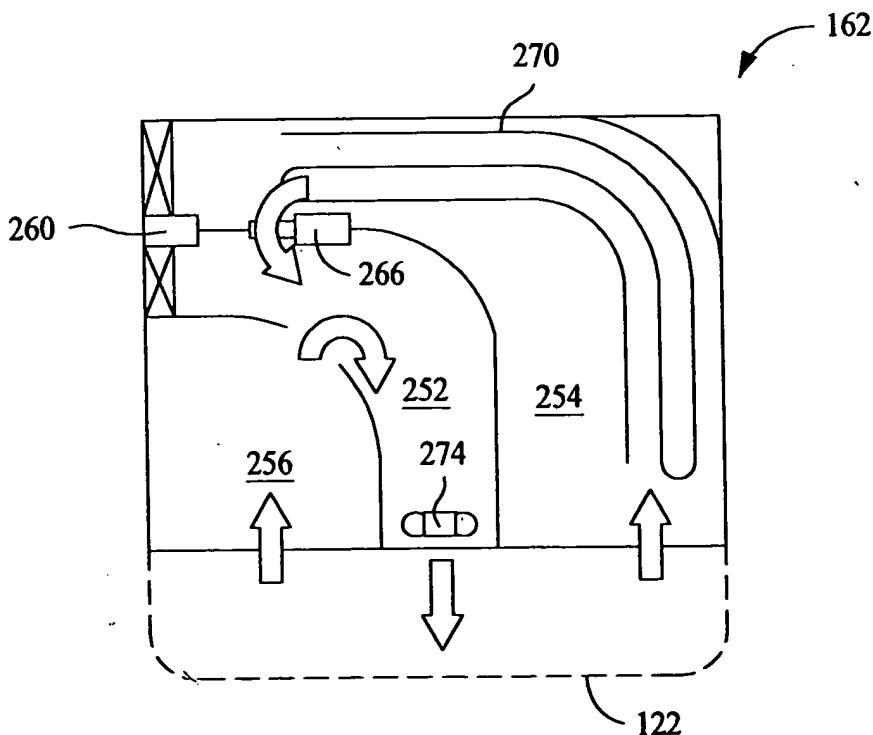


FIG. 6

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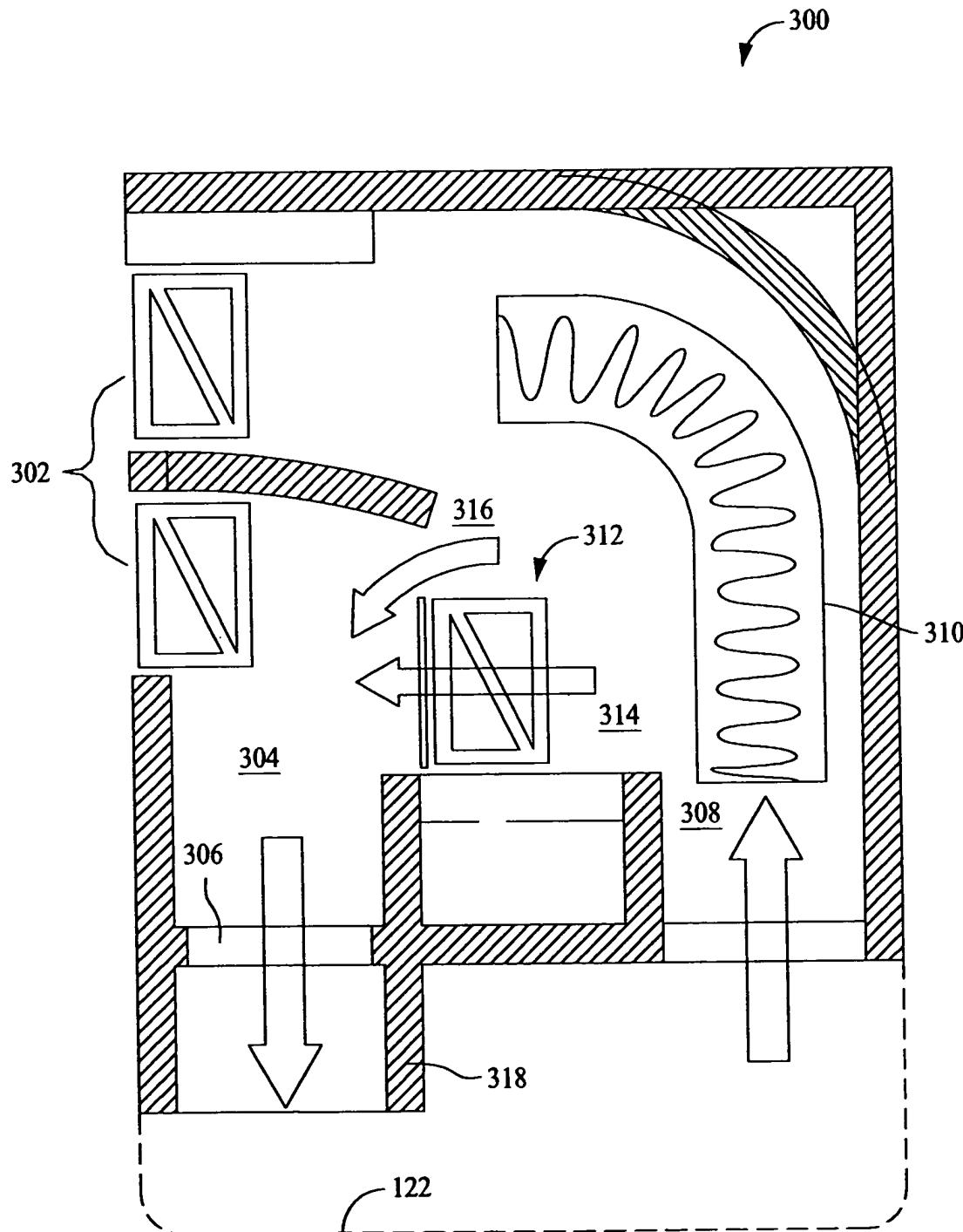


FIG. 7



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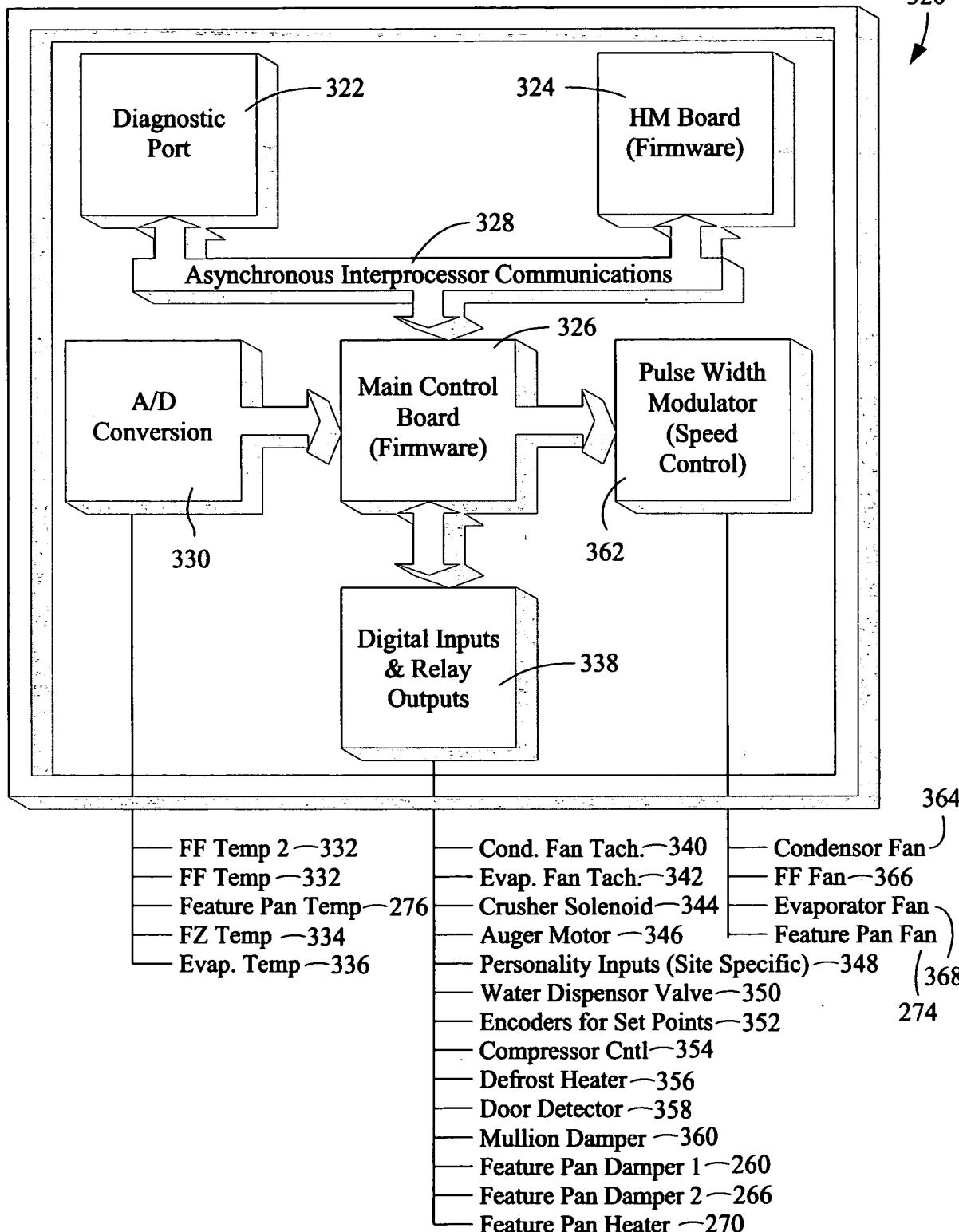


FIG. 8



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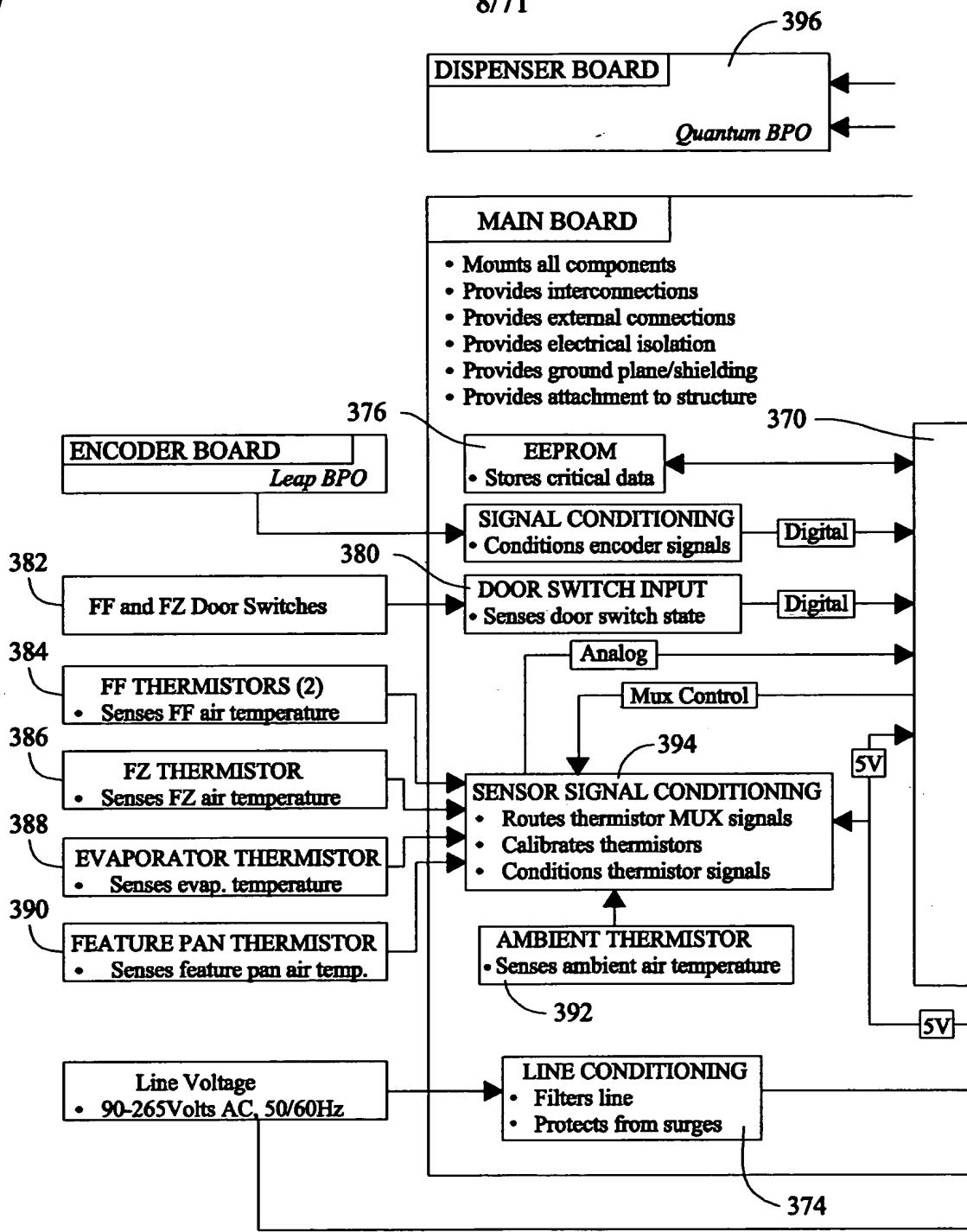
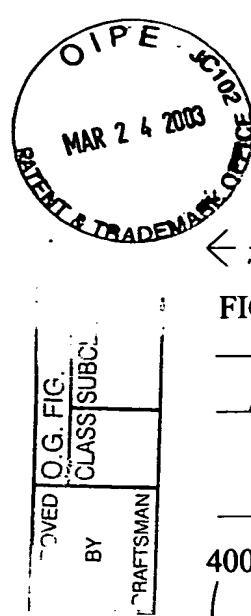


FIG. 9A

TO
FIG 9B



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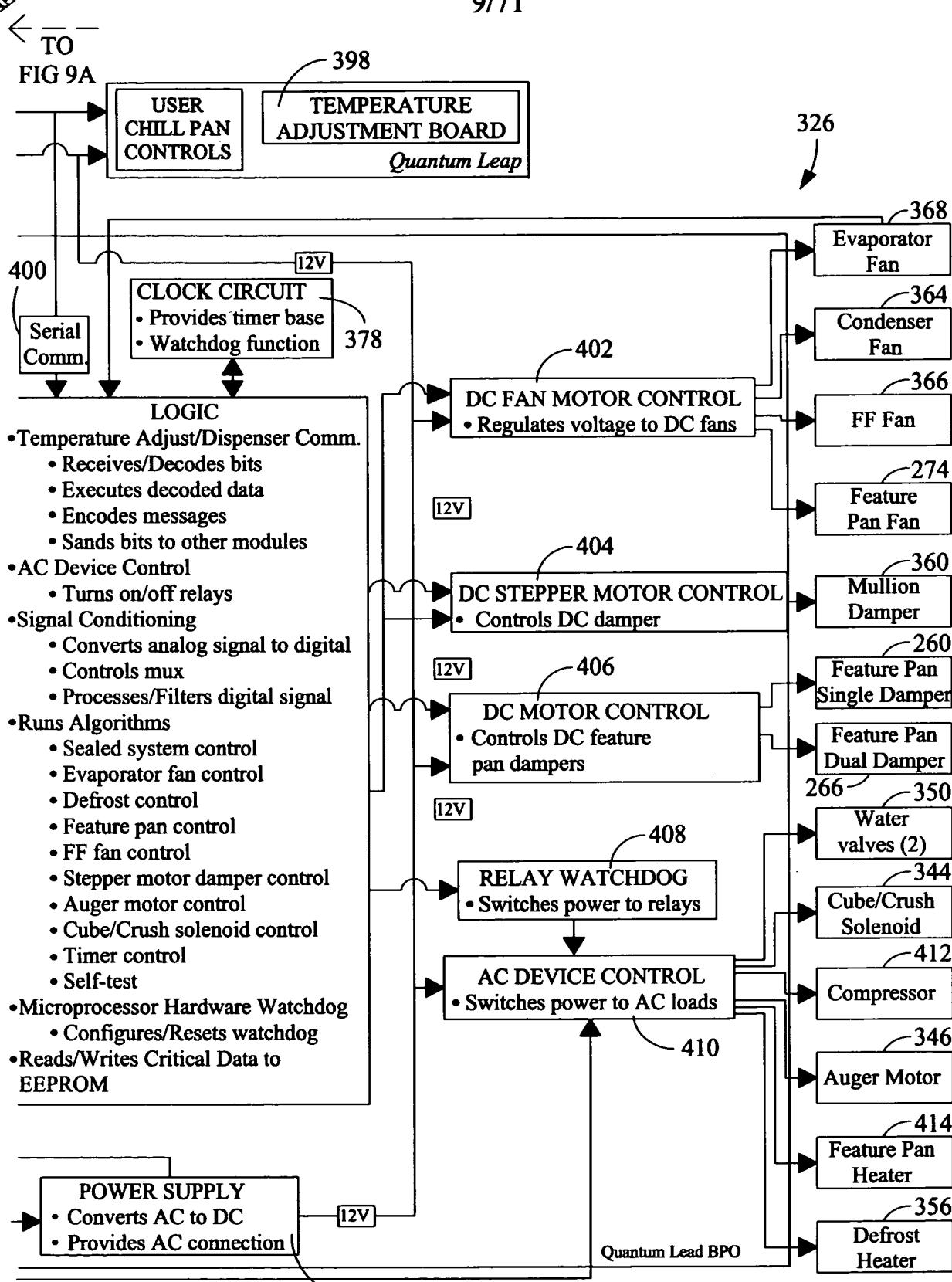


FIG. 9B



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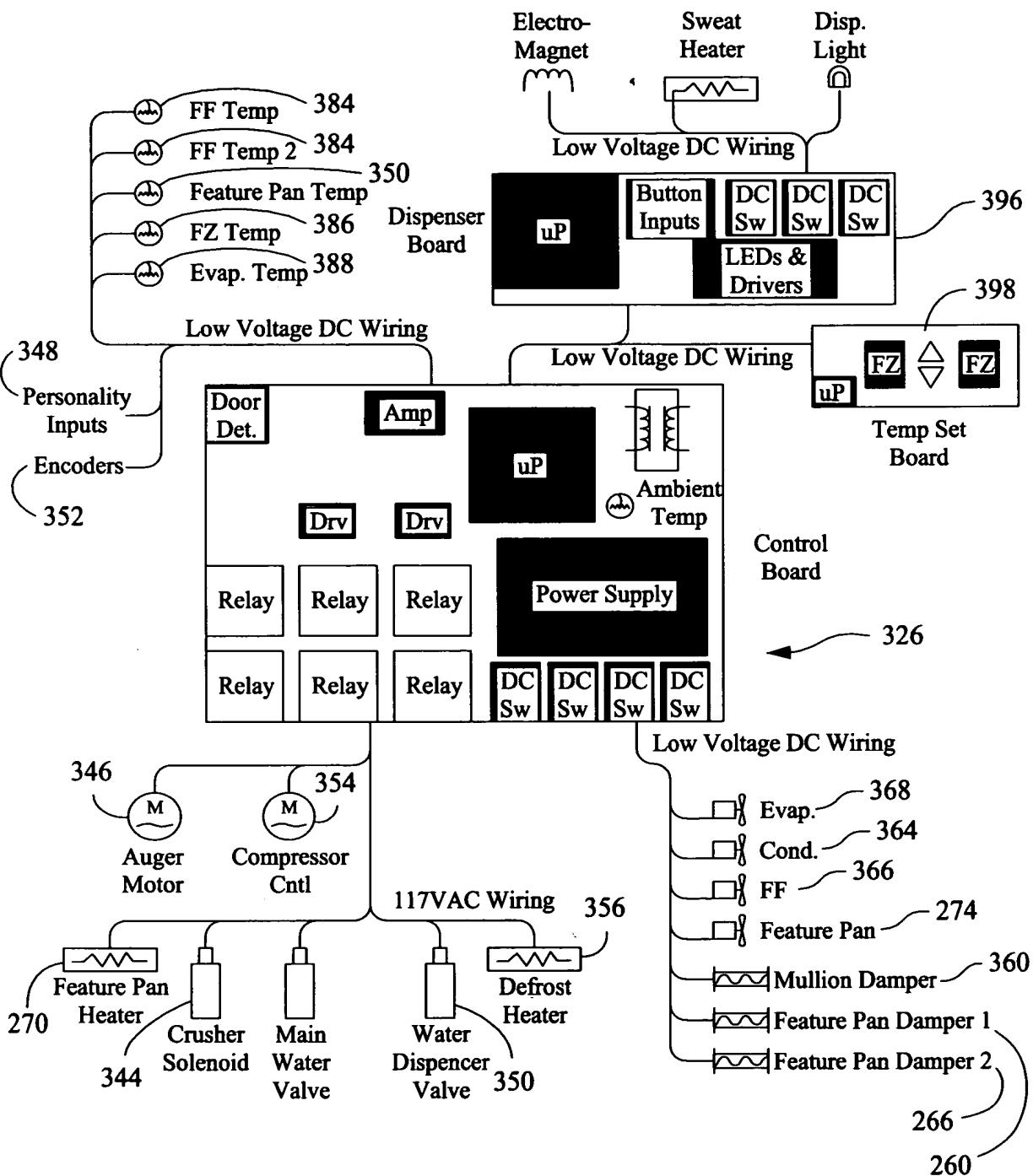


FIG. 10

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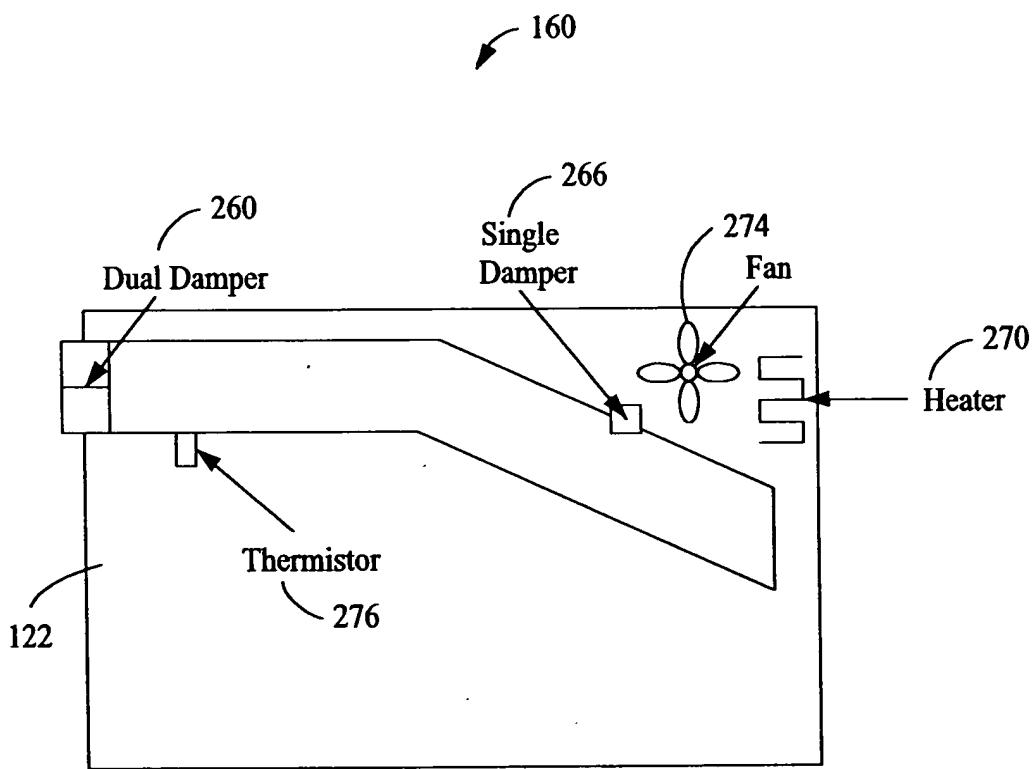


FIG. 11

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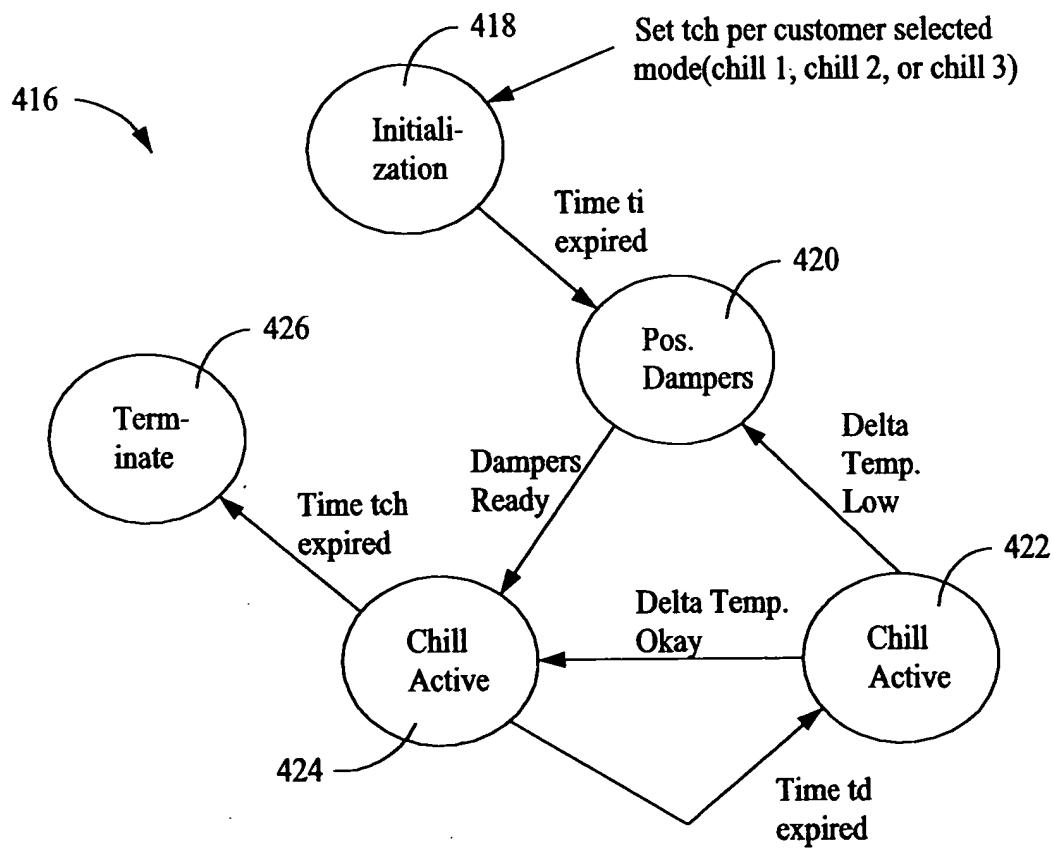
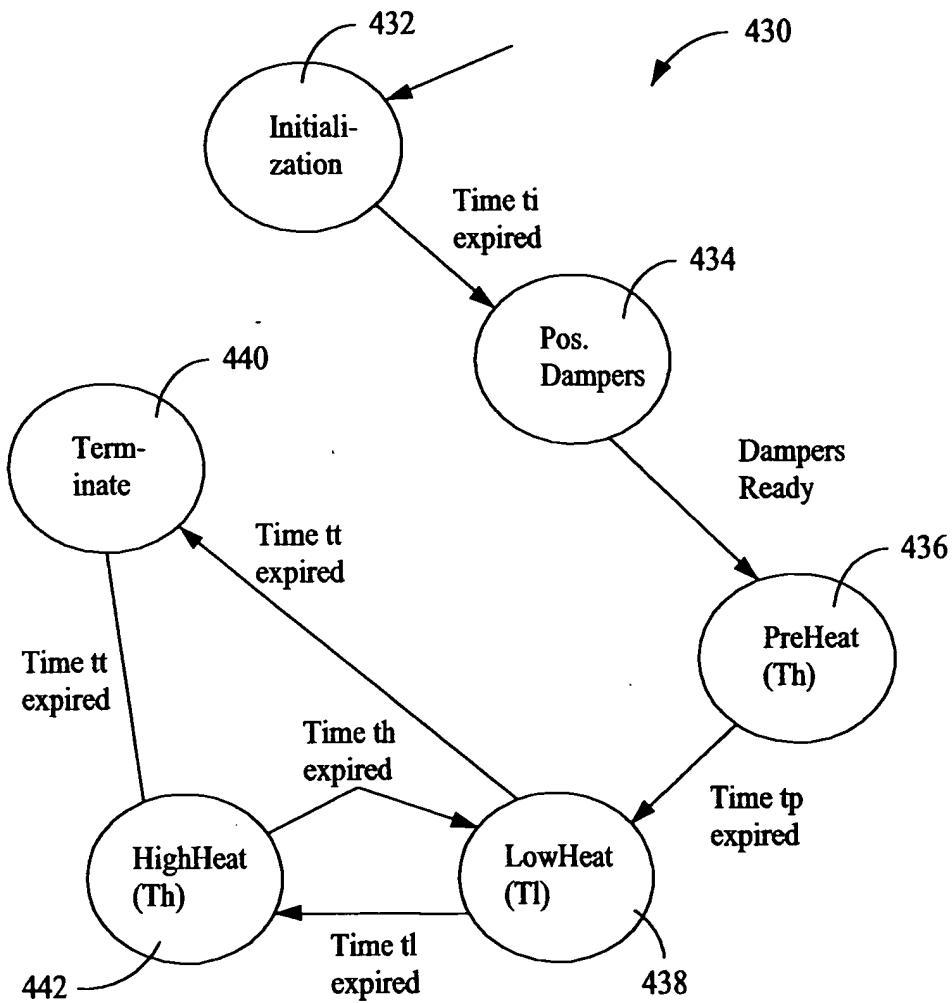


FIG. 12

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Initialization: Shuts off heater and turns on fan. This mode is implemented so that the customer interface LED that is wired in parallel with the fan will turn on as soon as the button is hit. Time t_i is the initialization time and will typically be approximately one minute.

Pos. Dampers: This state shuts off the fan, sets the single damper open then closes the dual damper. It then turns the fan back on. This is done for power management

PreHeat: This state regulates the pan temperature

LowHeat

HighHeat:

Terminate: This mode closes both dampers and shuts off the fan then returns to idle.

FIG. 13

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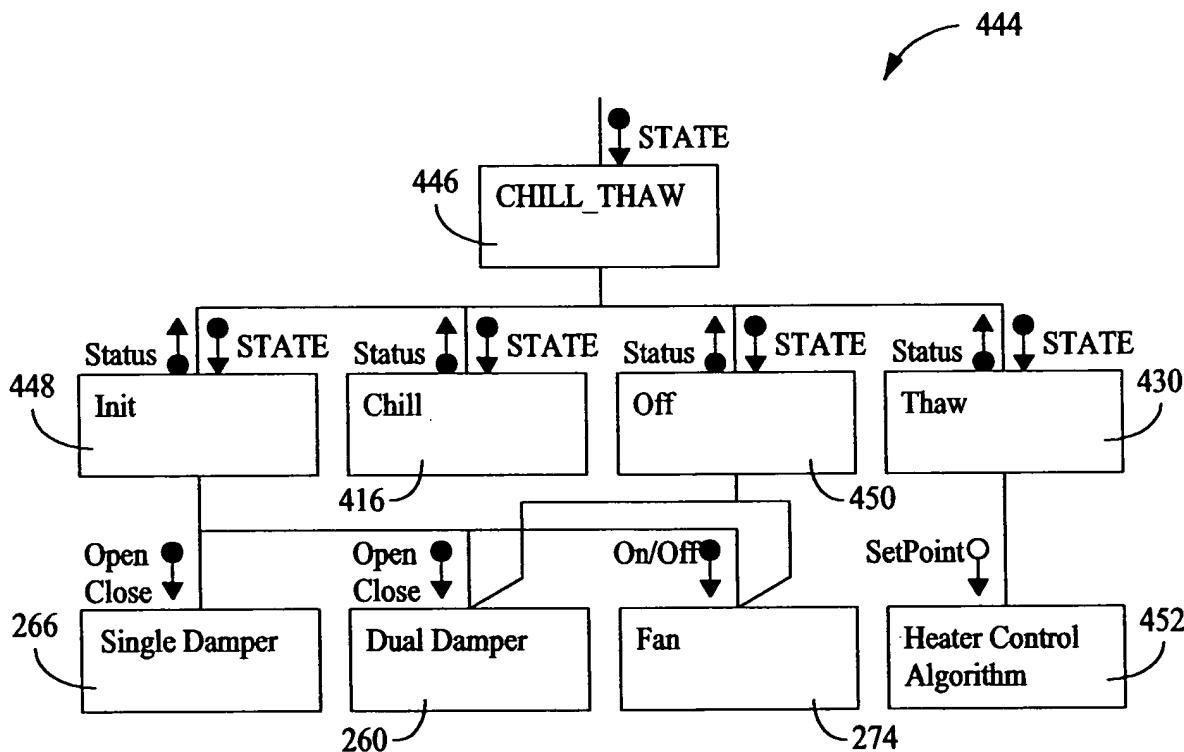


FIG. 14



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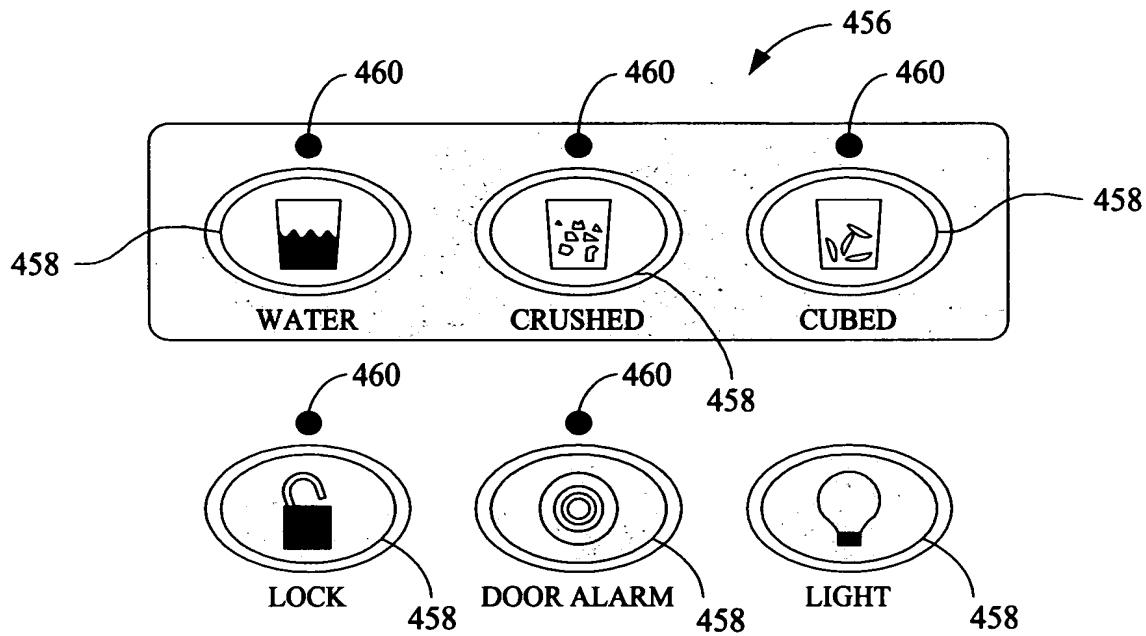


FIG. 15



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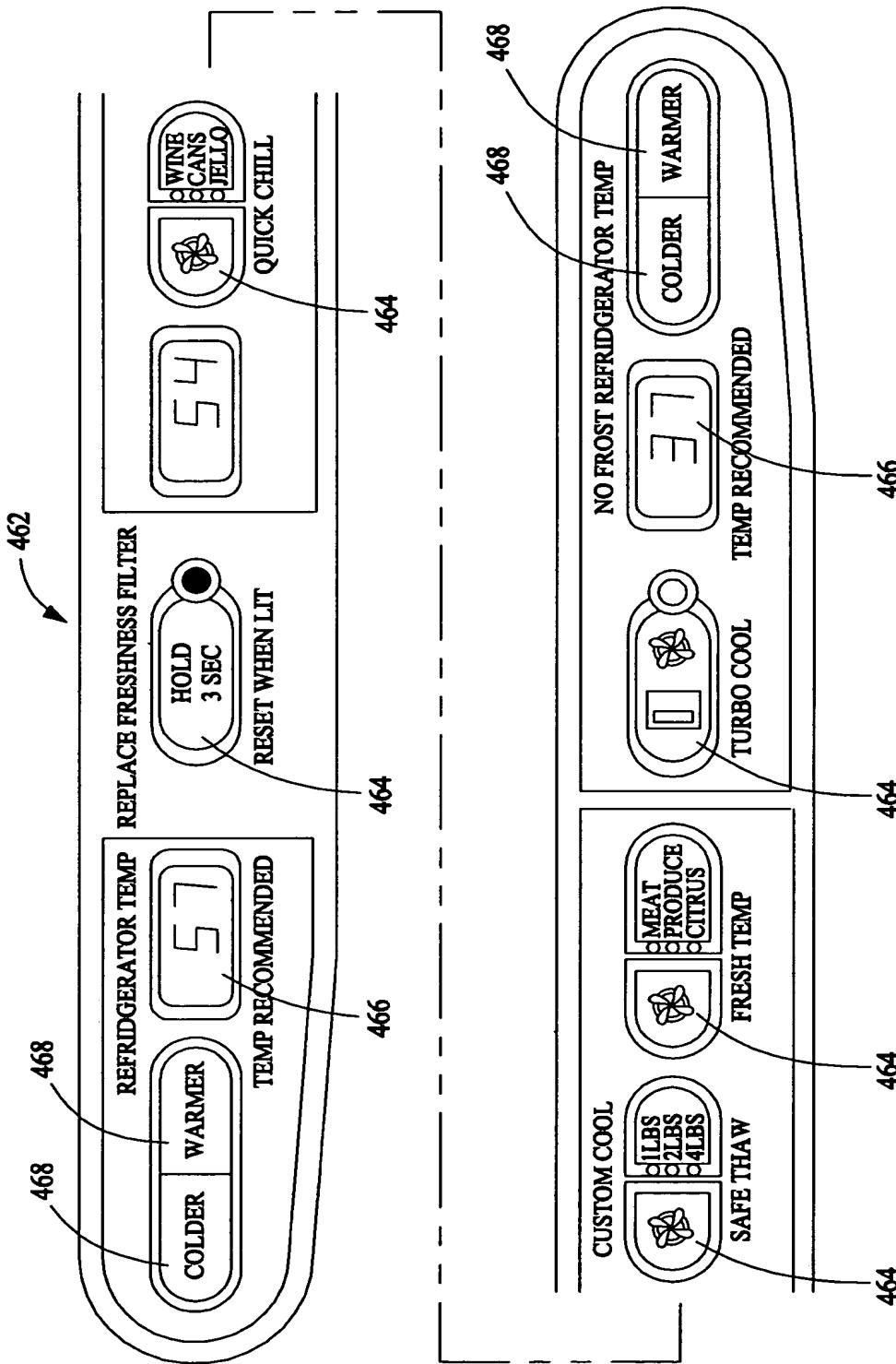


FIG. 16

SEARCHED O.G. FIG.
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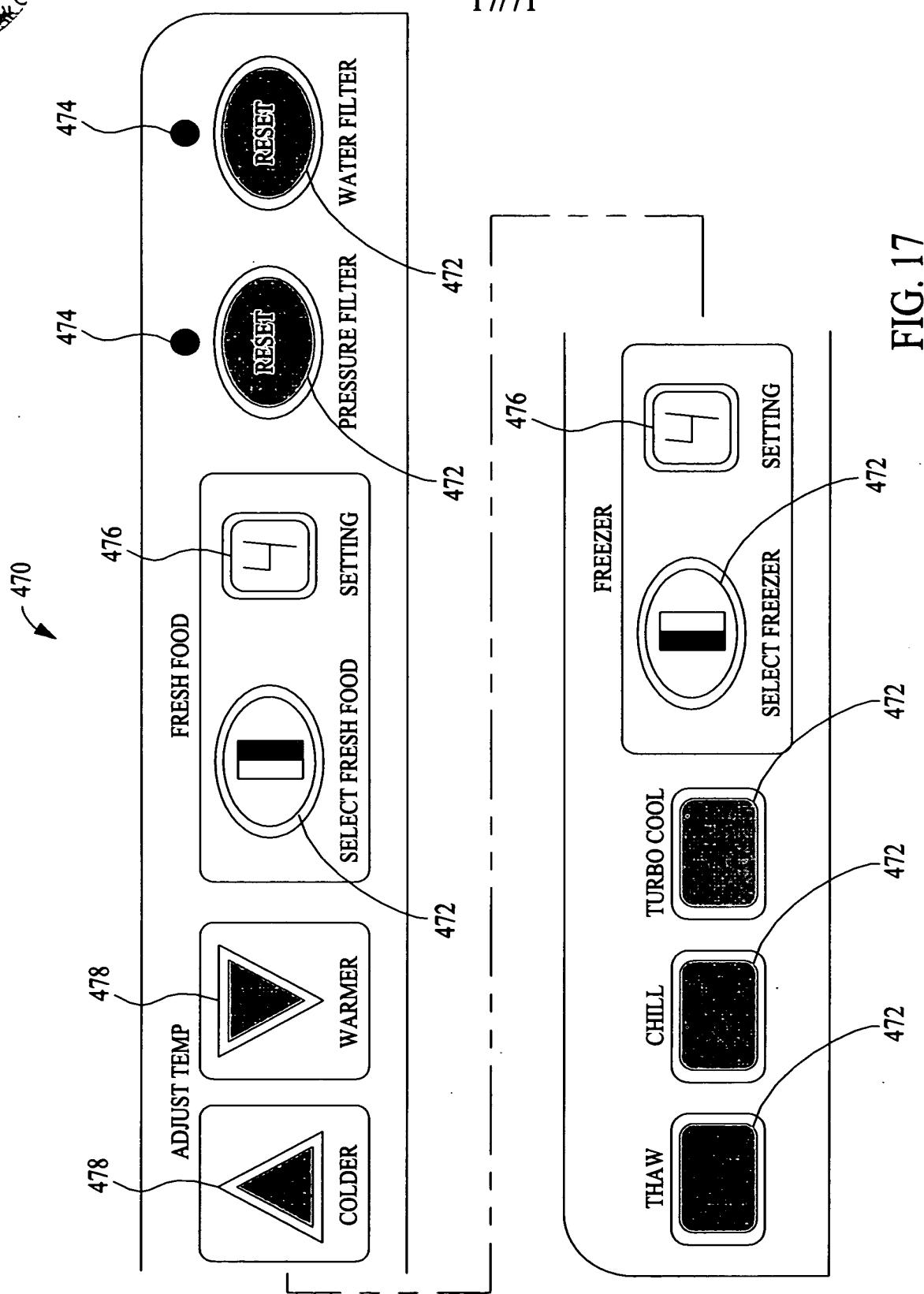
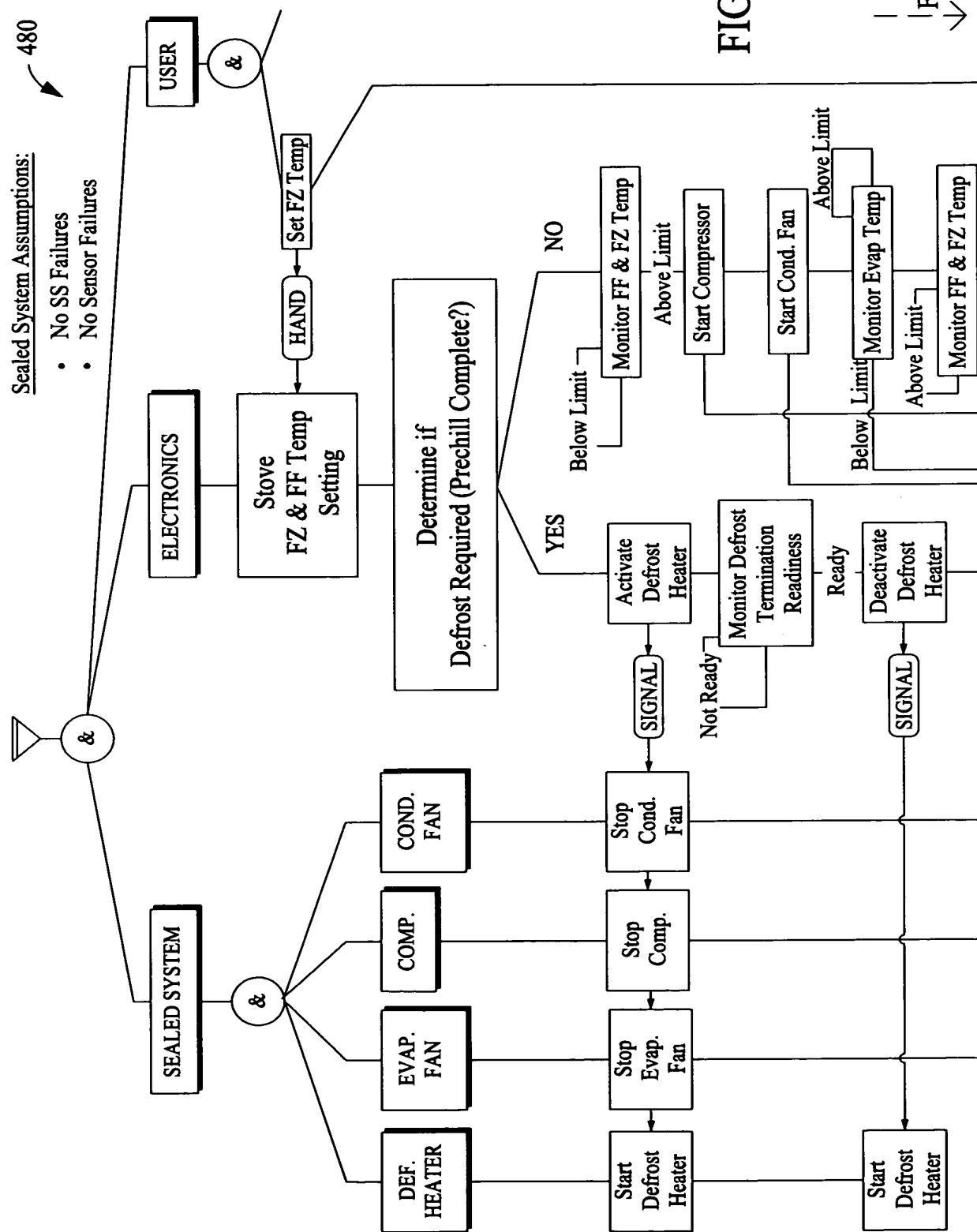


FIG. 17

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FIG. 18A

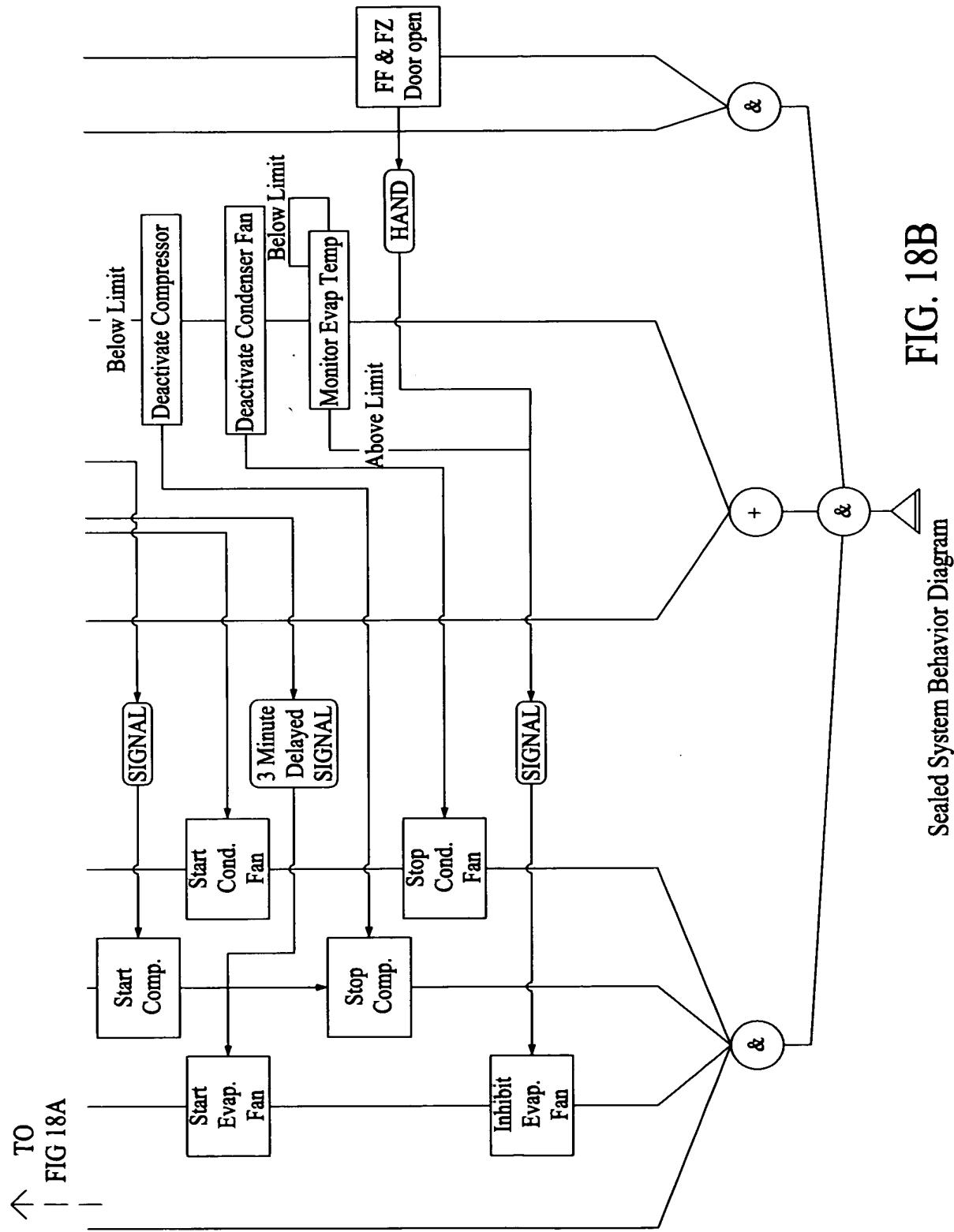
TO FIG 18B



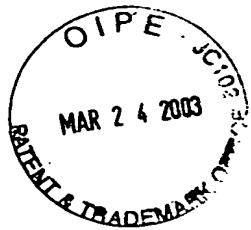


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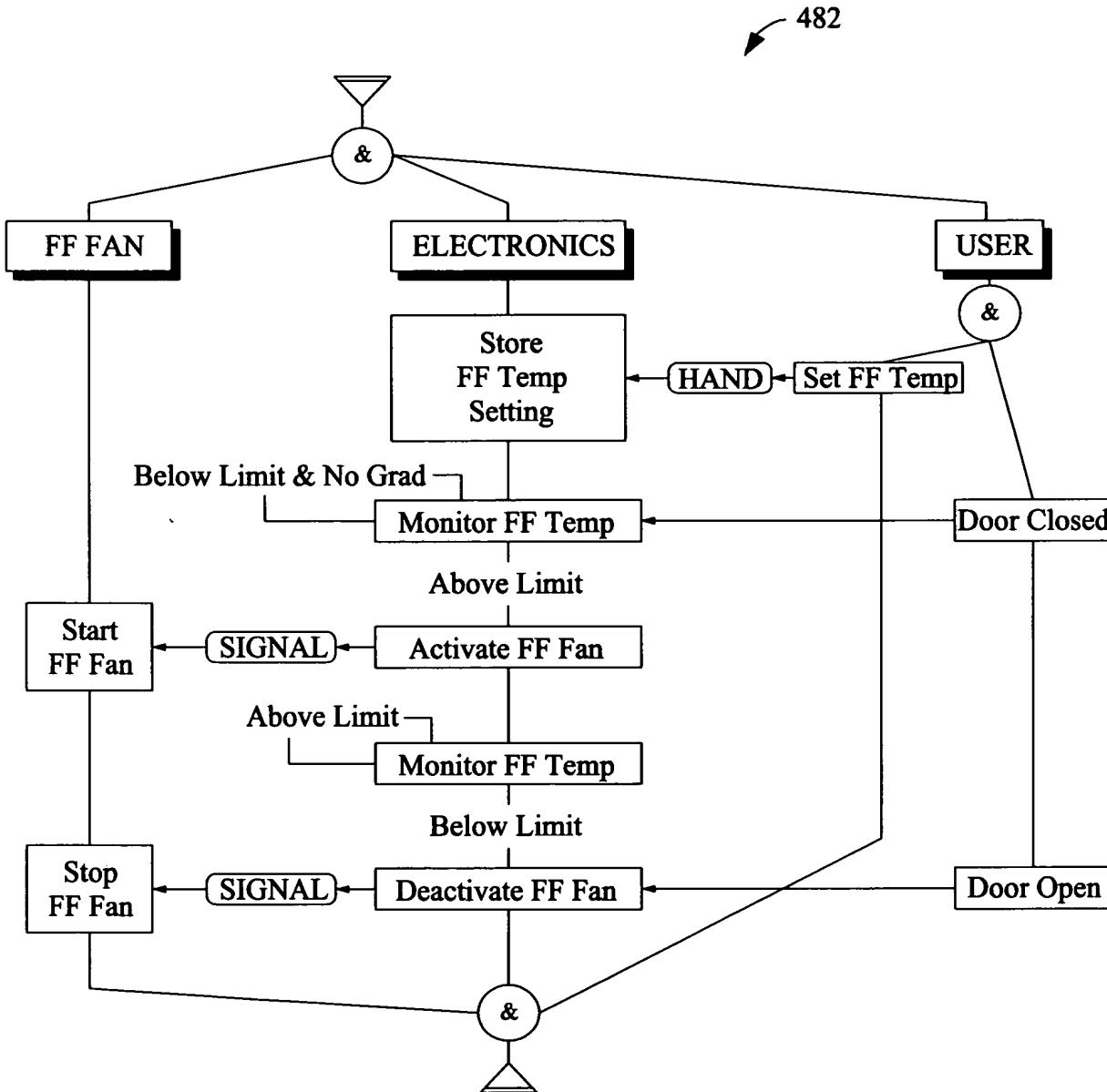
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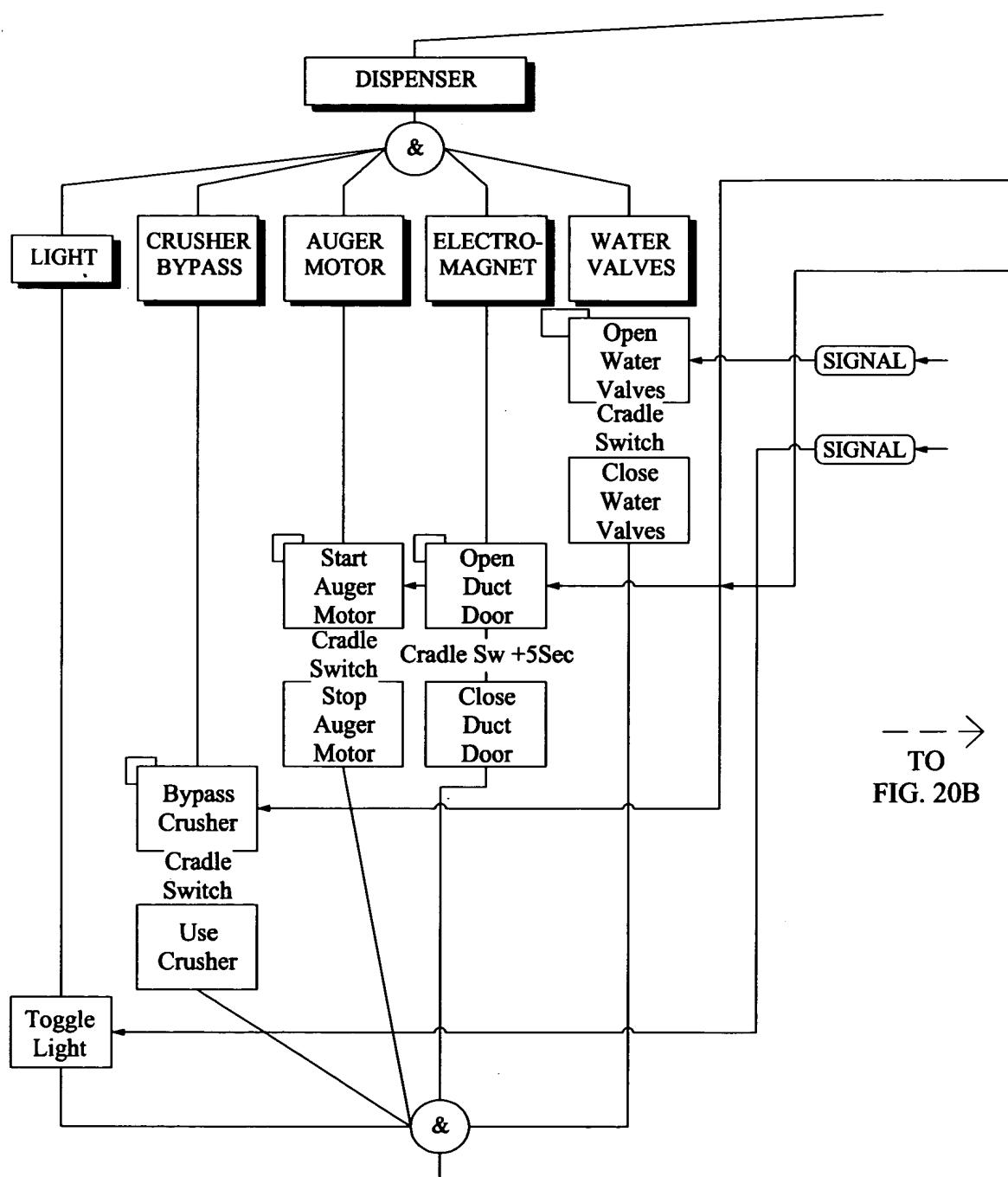
JOVED O.G. FIG.
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Fresh Food Fan Behavior Diagram

FIG. 19

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Dispenser Behavior

FIG. 20A

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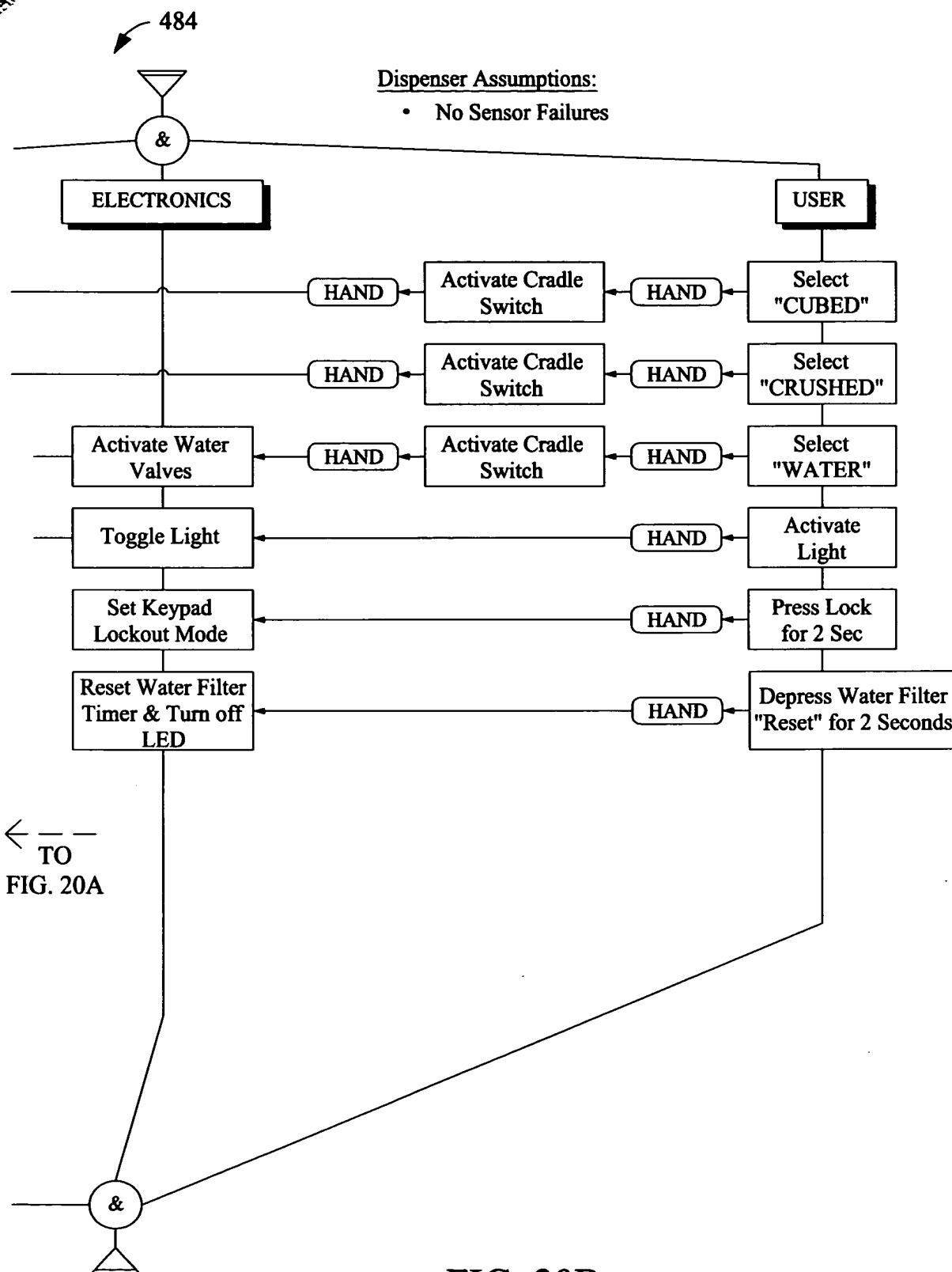


FIG. 20B

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SEARCHED
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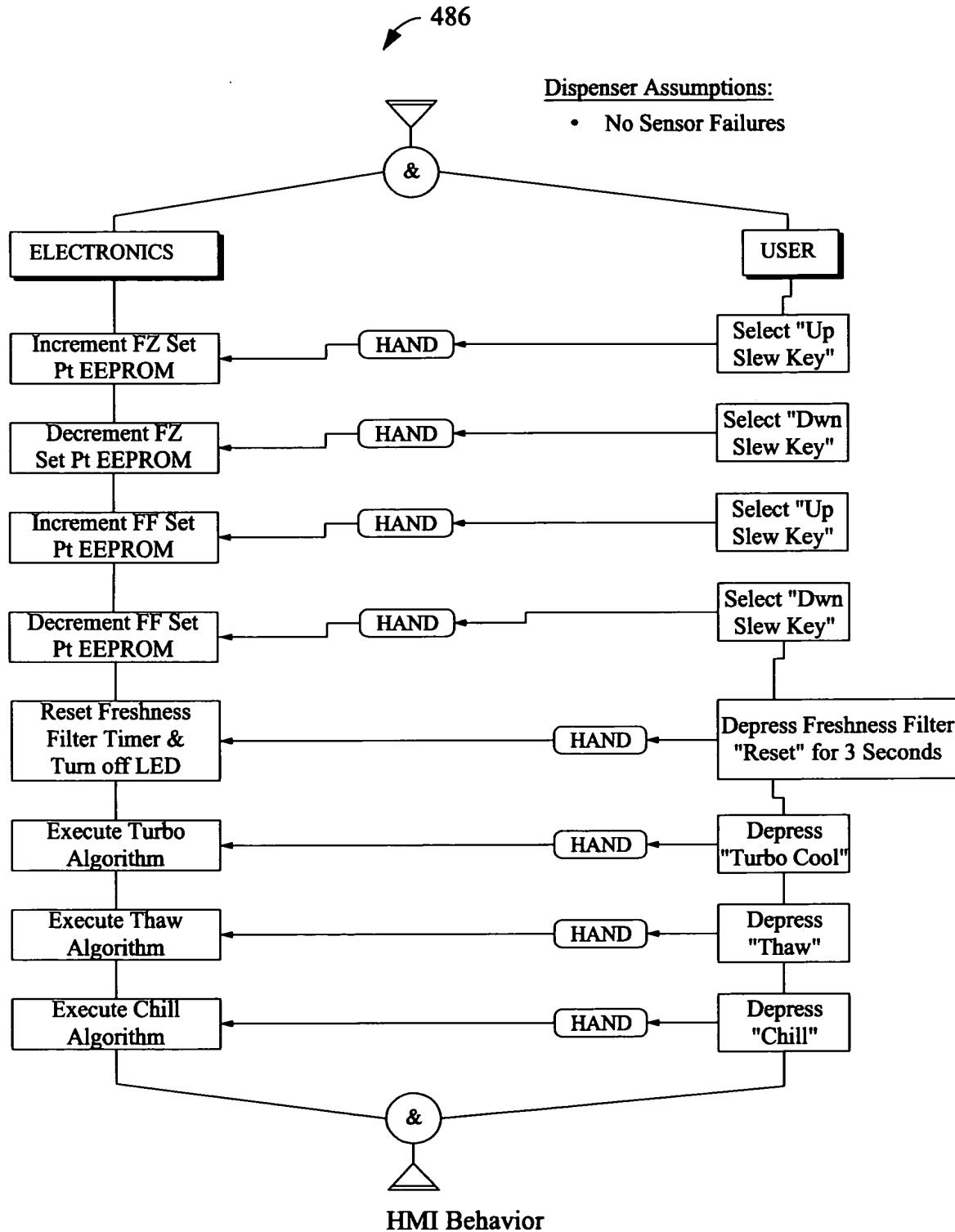


FIG. 21



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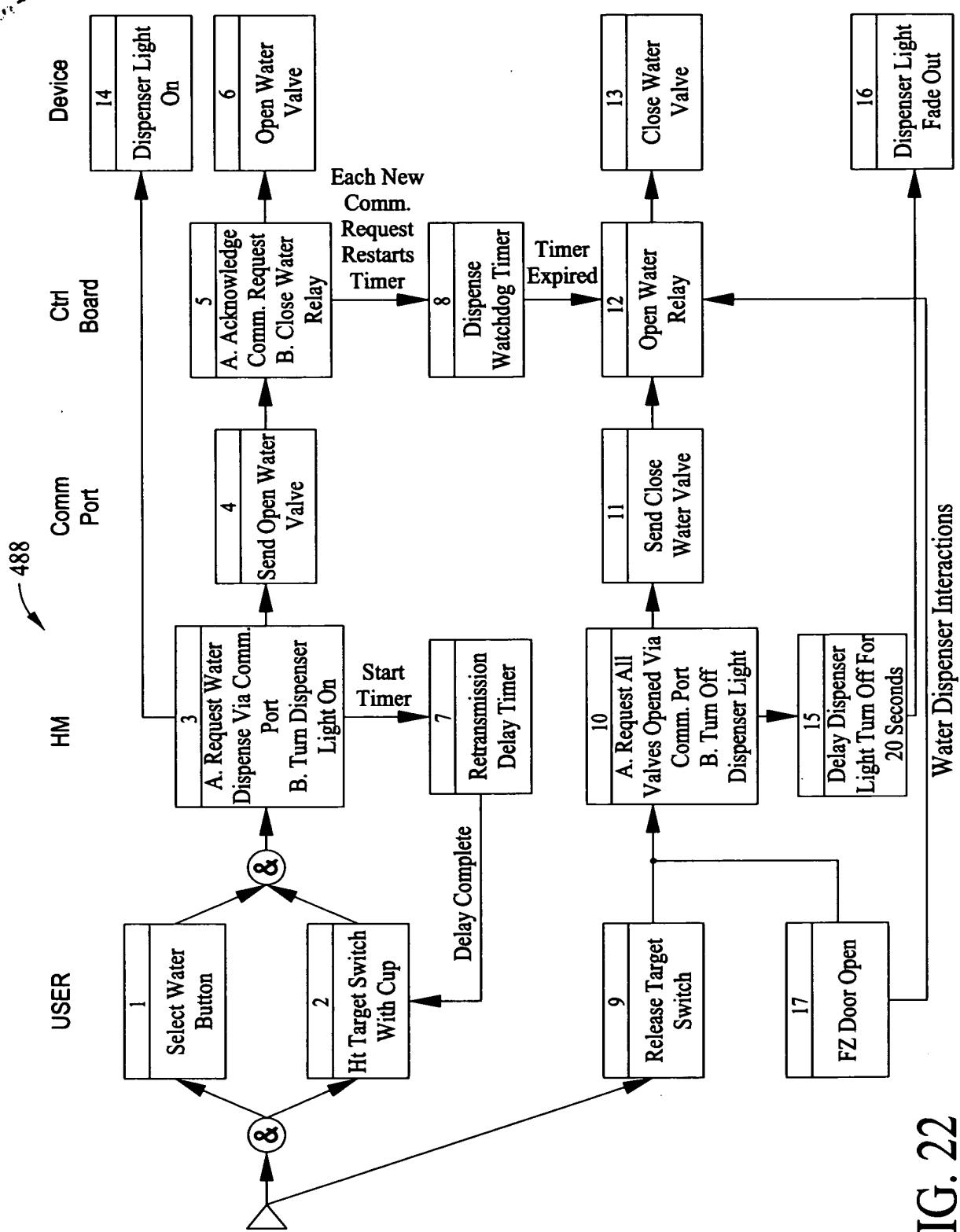


FIG. 22



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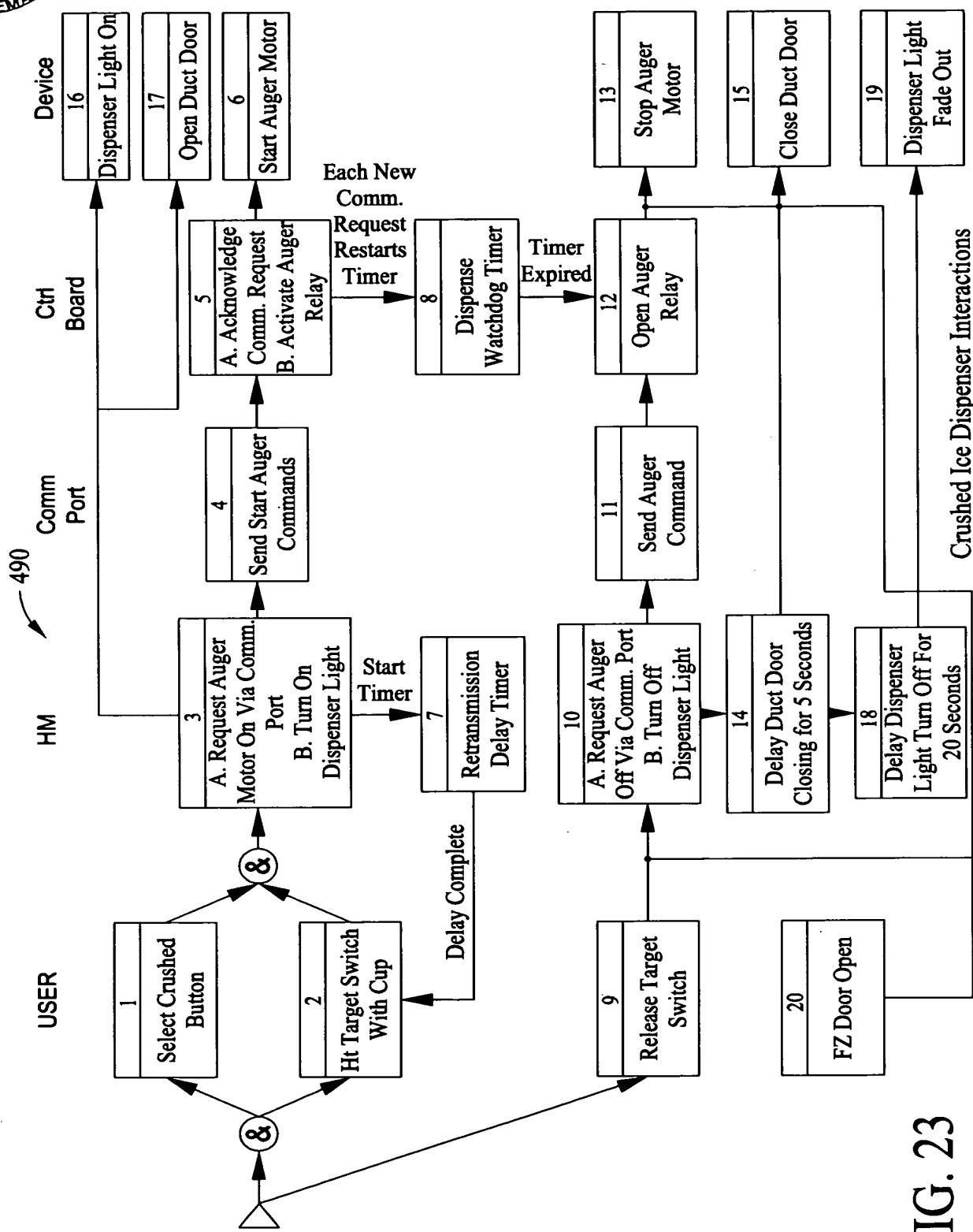


FIG. 23



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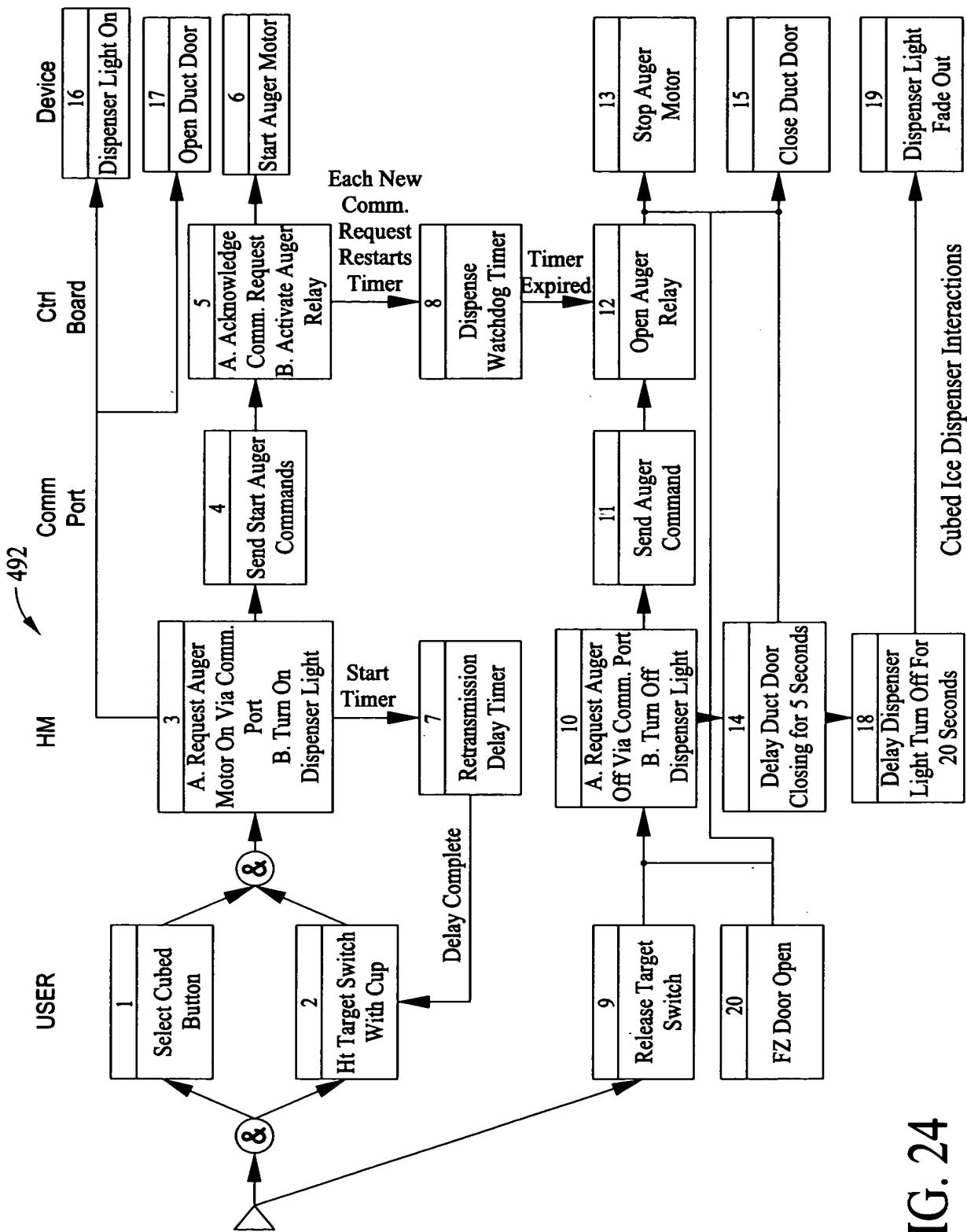
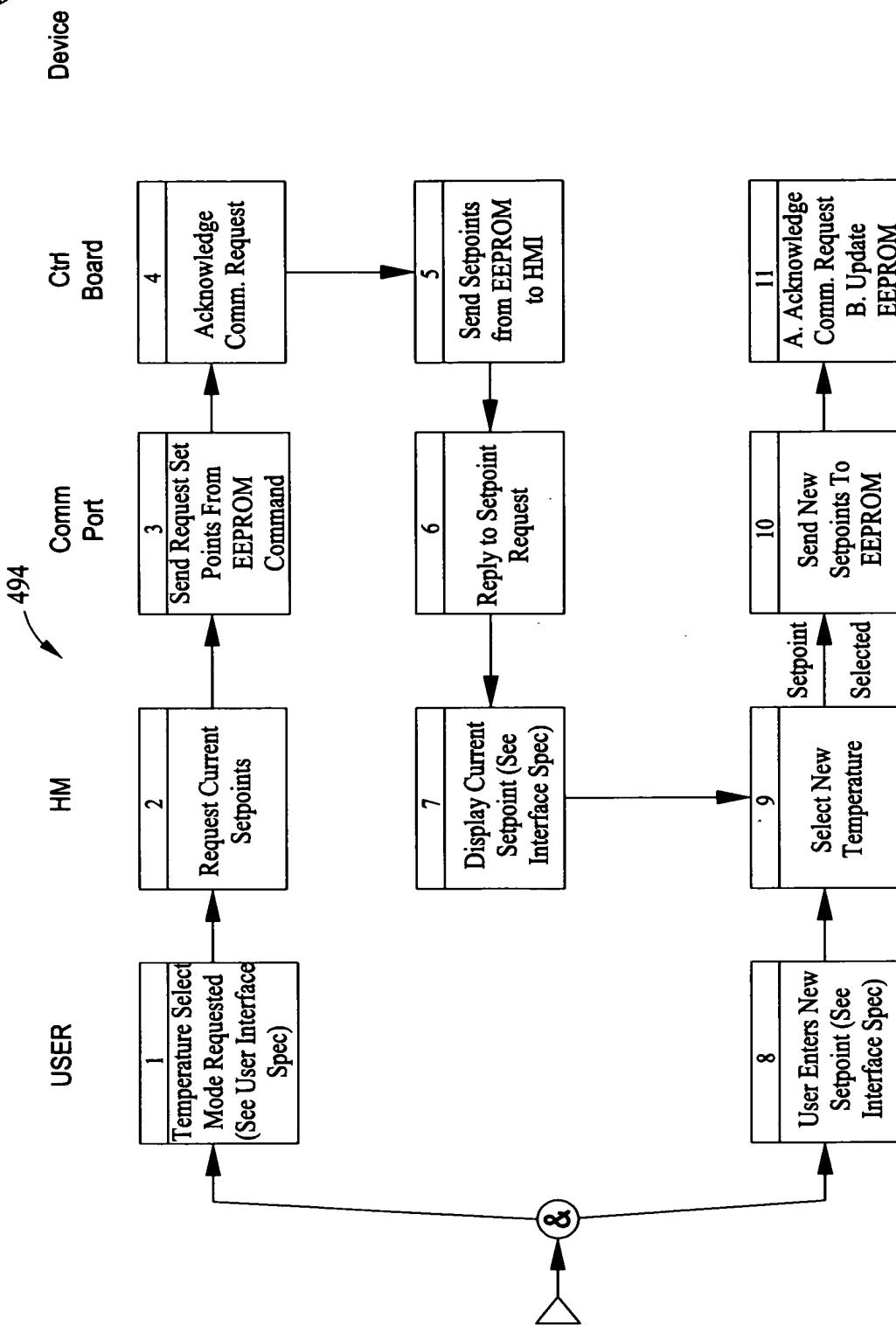


FIG. 24



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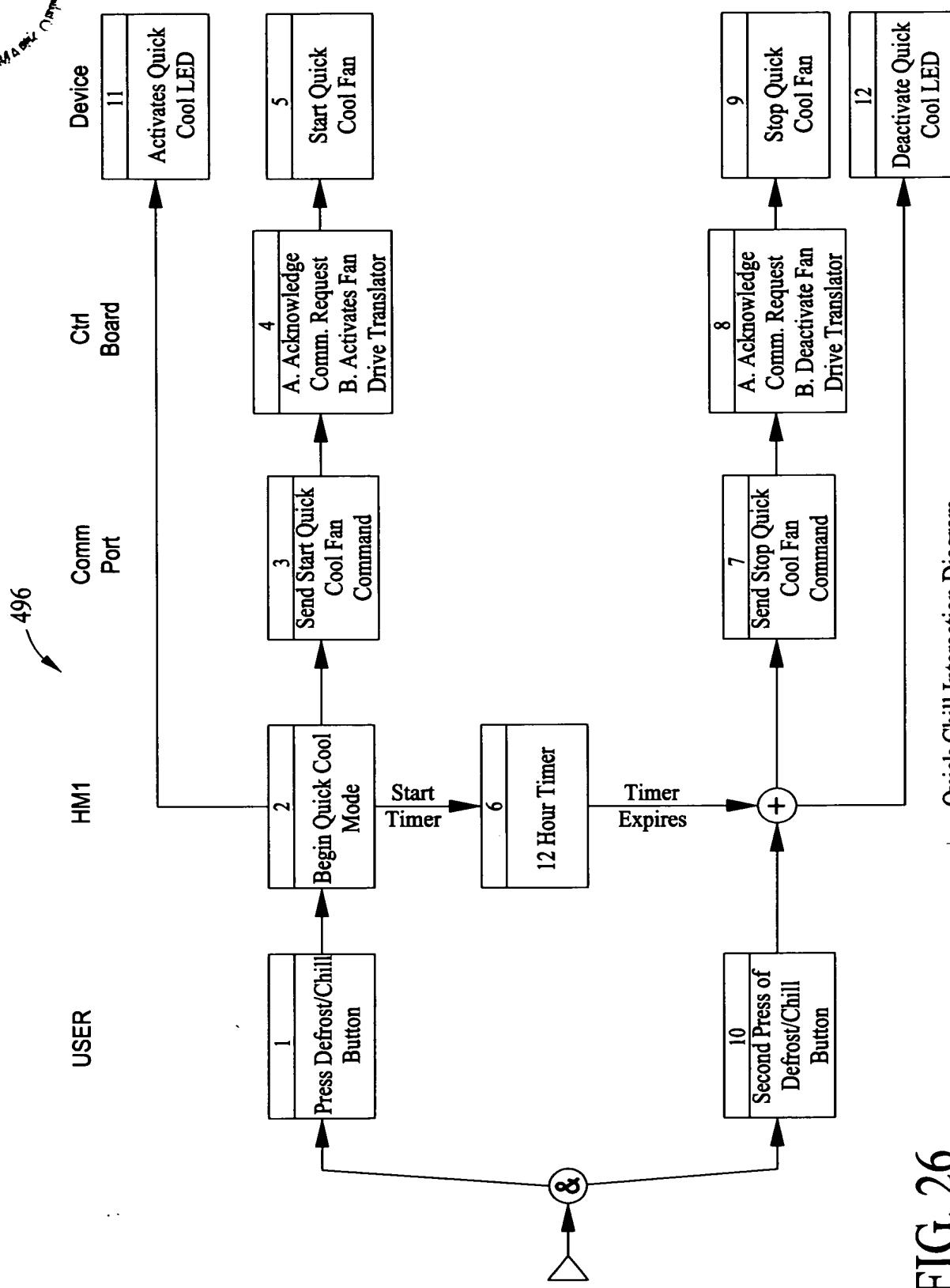


FIG. 26

Quick Chill Interaction Diagram

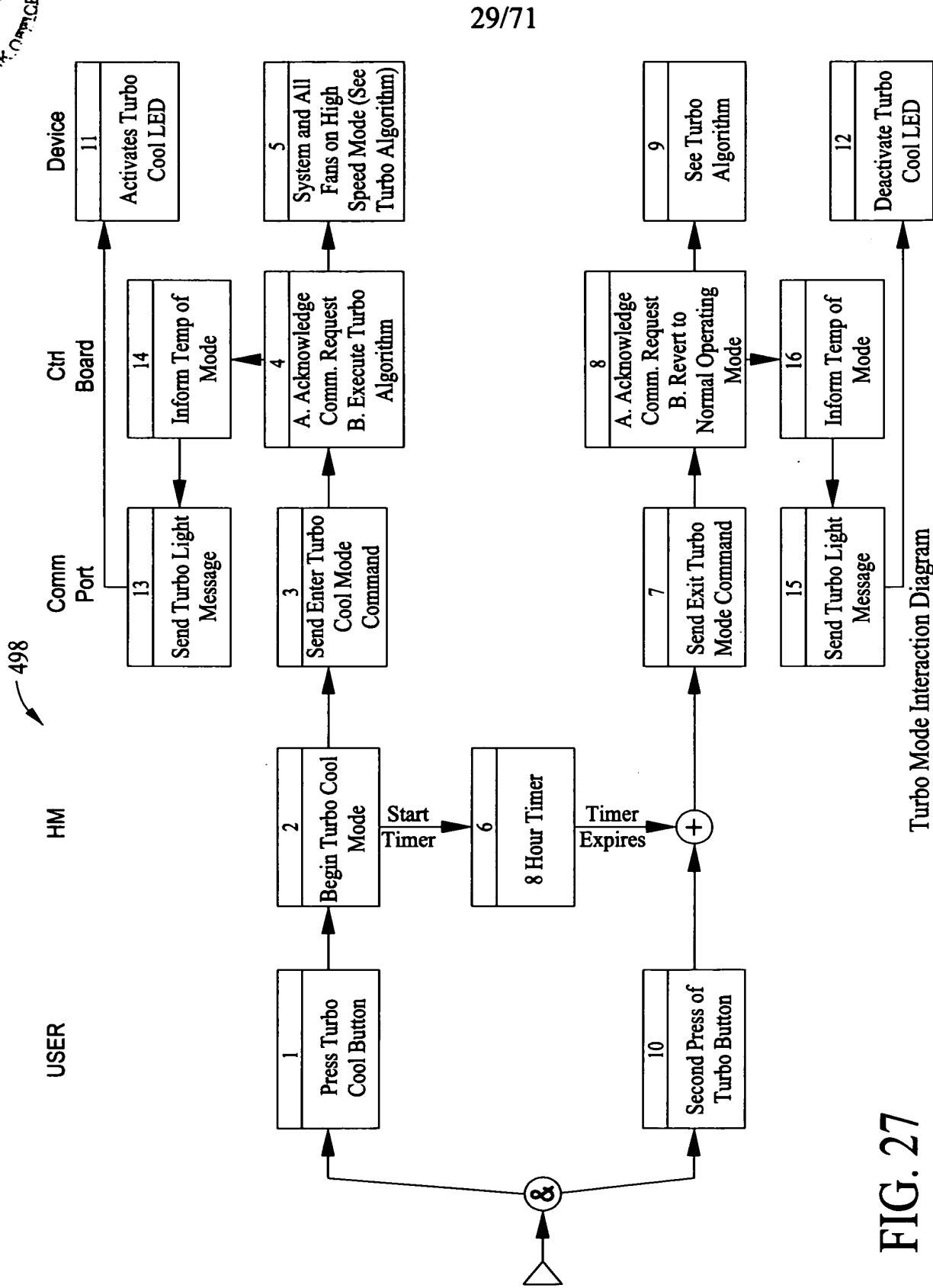
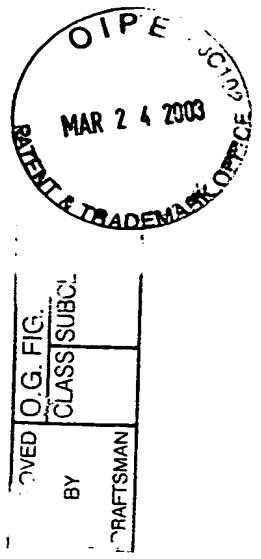
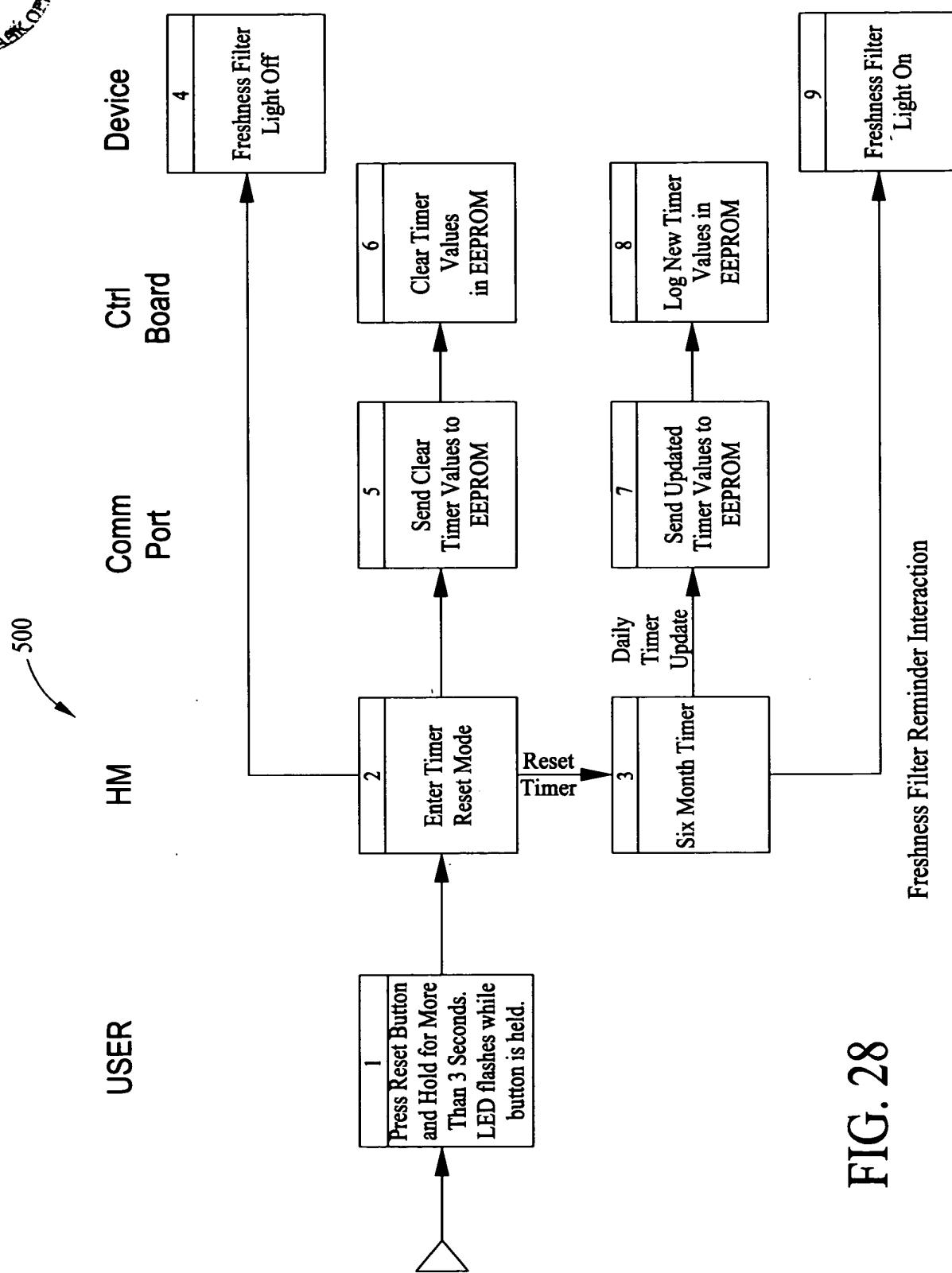


FIG. 27



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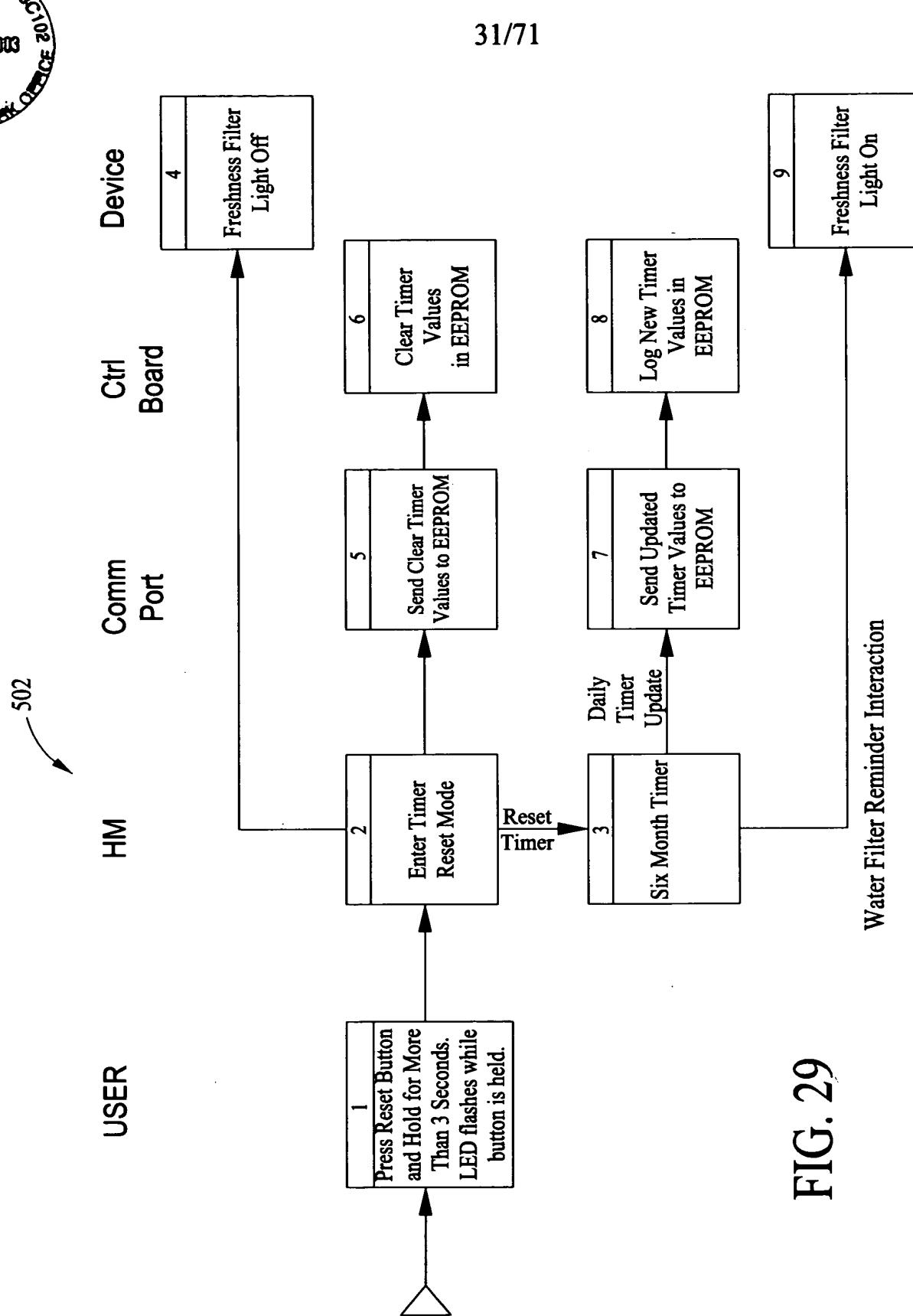
Freshness Filter Reminder Interaction

FIG. 28



SEARCHED O.G. FIG.
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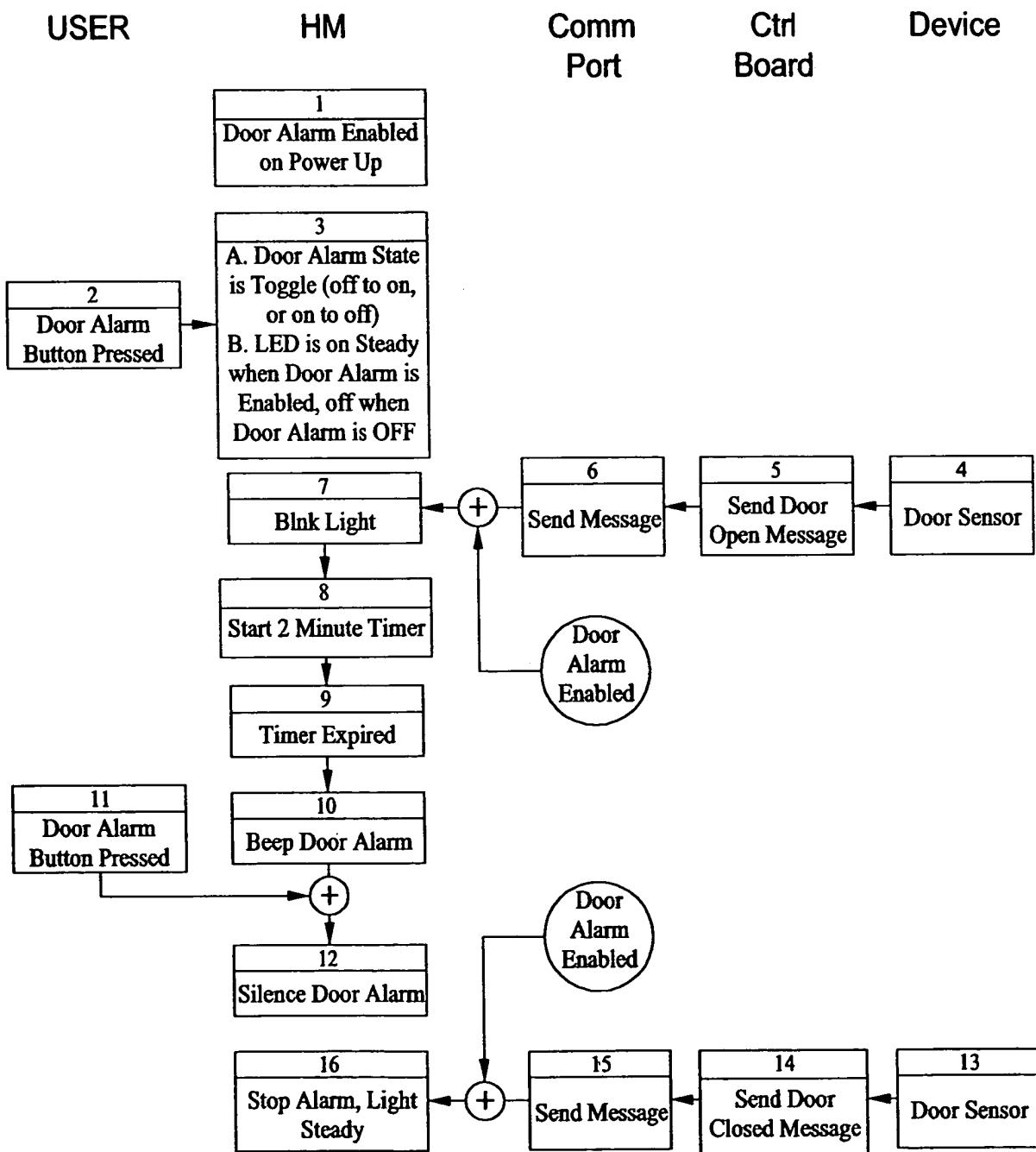
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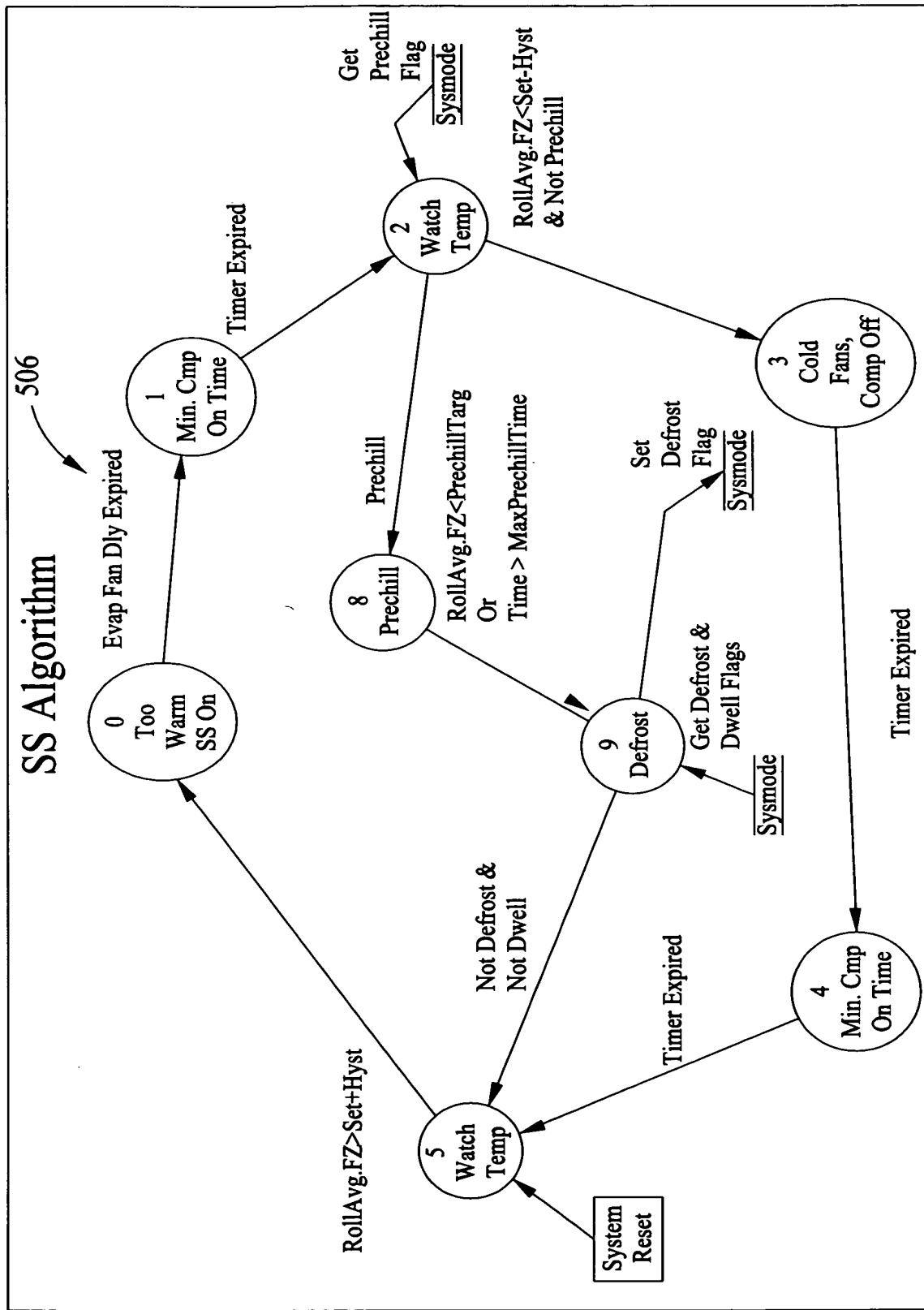
RECEIVED O.G. FIG.
CLASS SUBCL...
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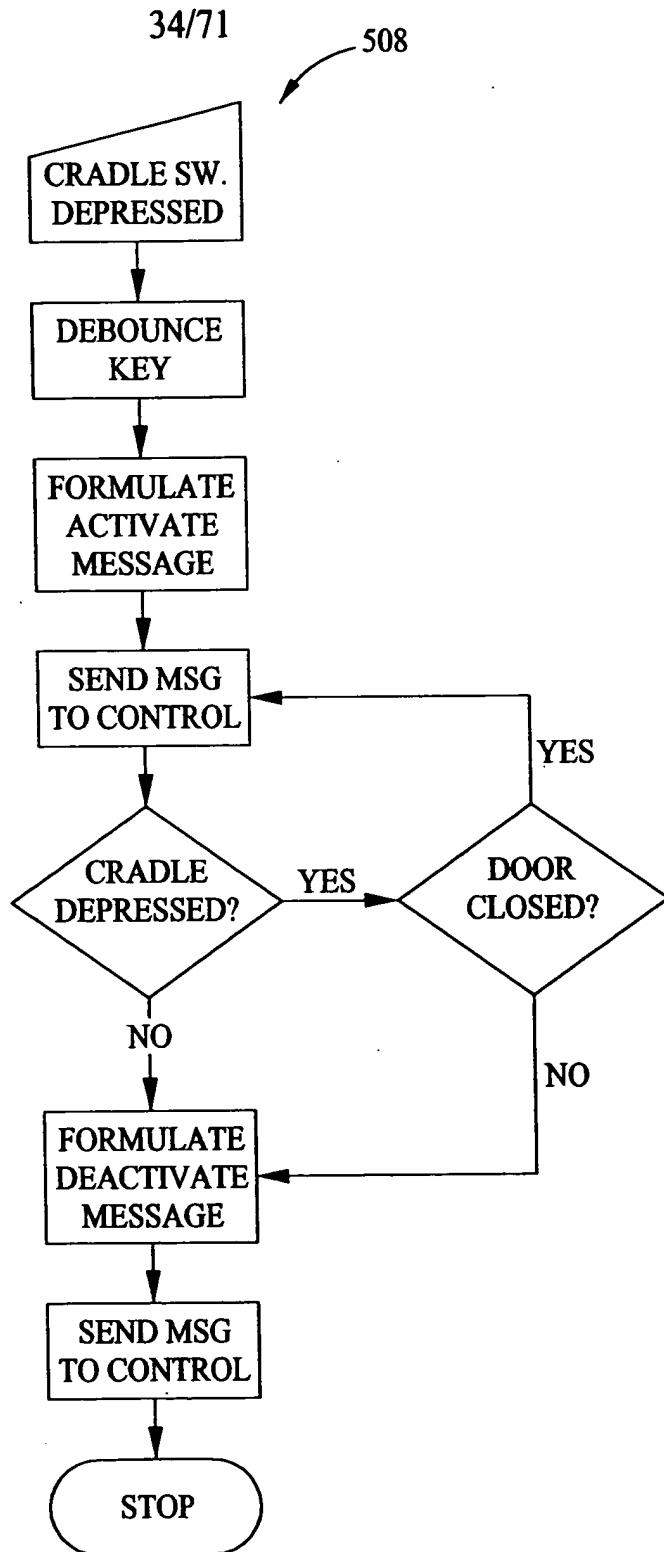


Door Open Interaction Diagram



Applies to: ~~Ames, Iowa, USA~~
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Dispenser Control Algorithm

FIG. 32

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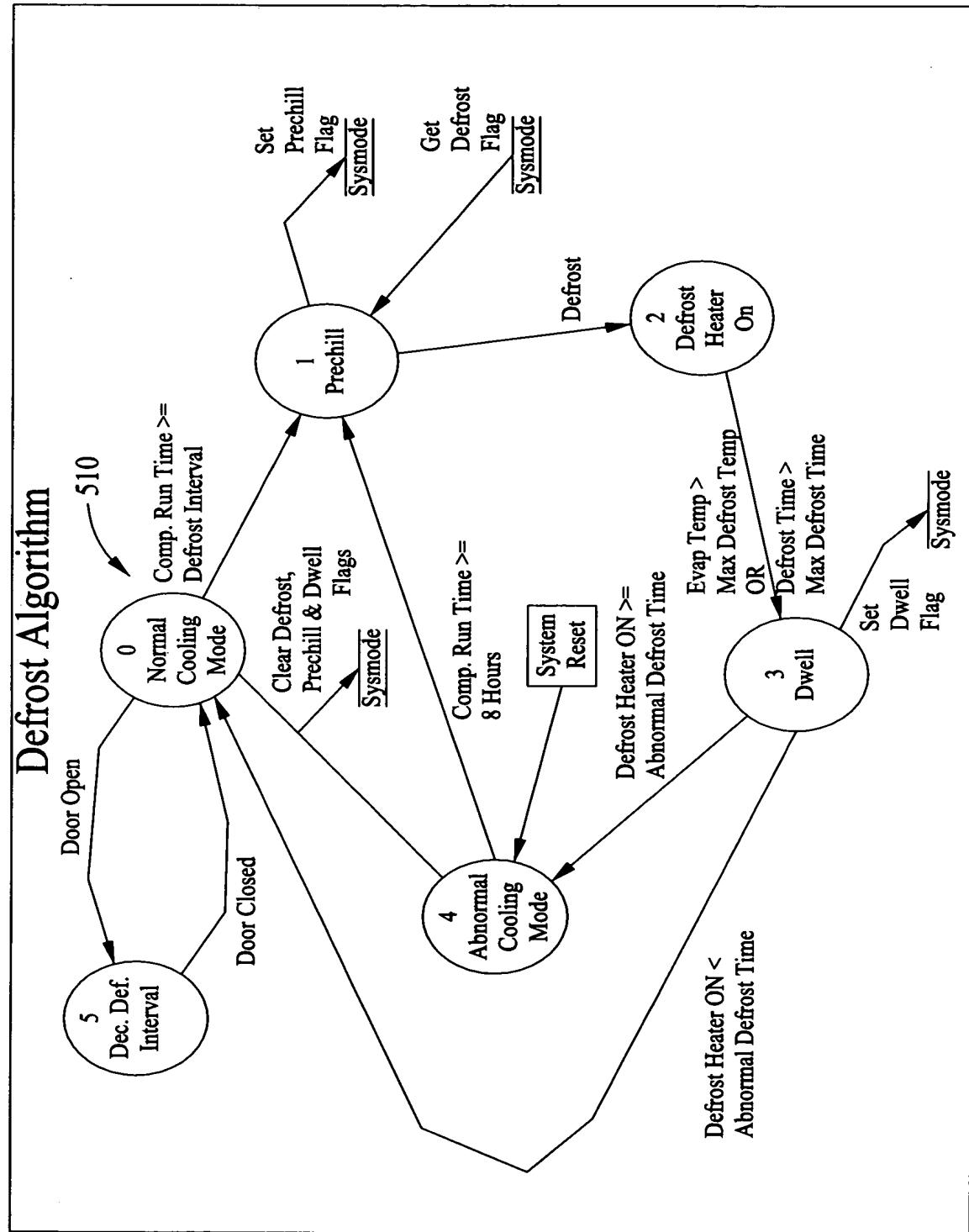


FIG. 33 Defrost Control State Diagram

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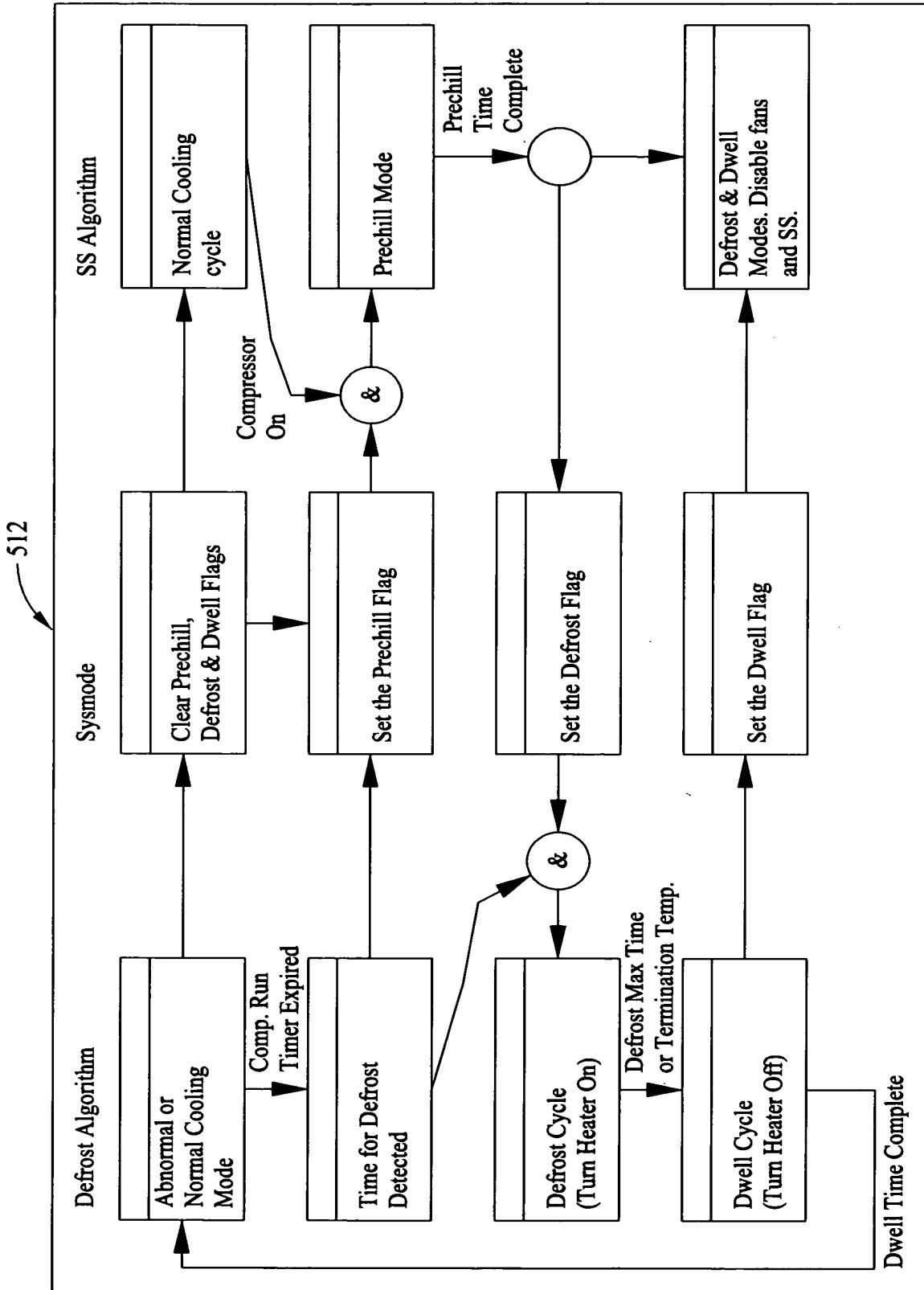


FIG. 34

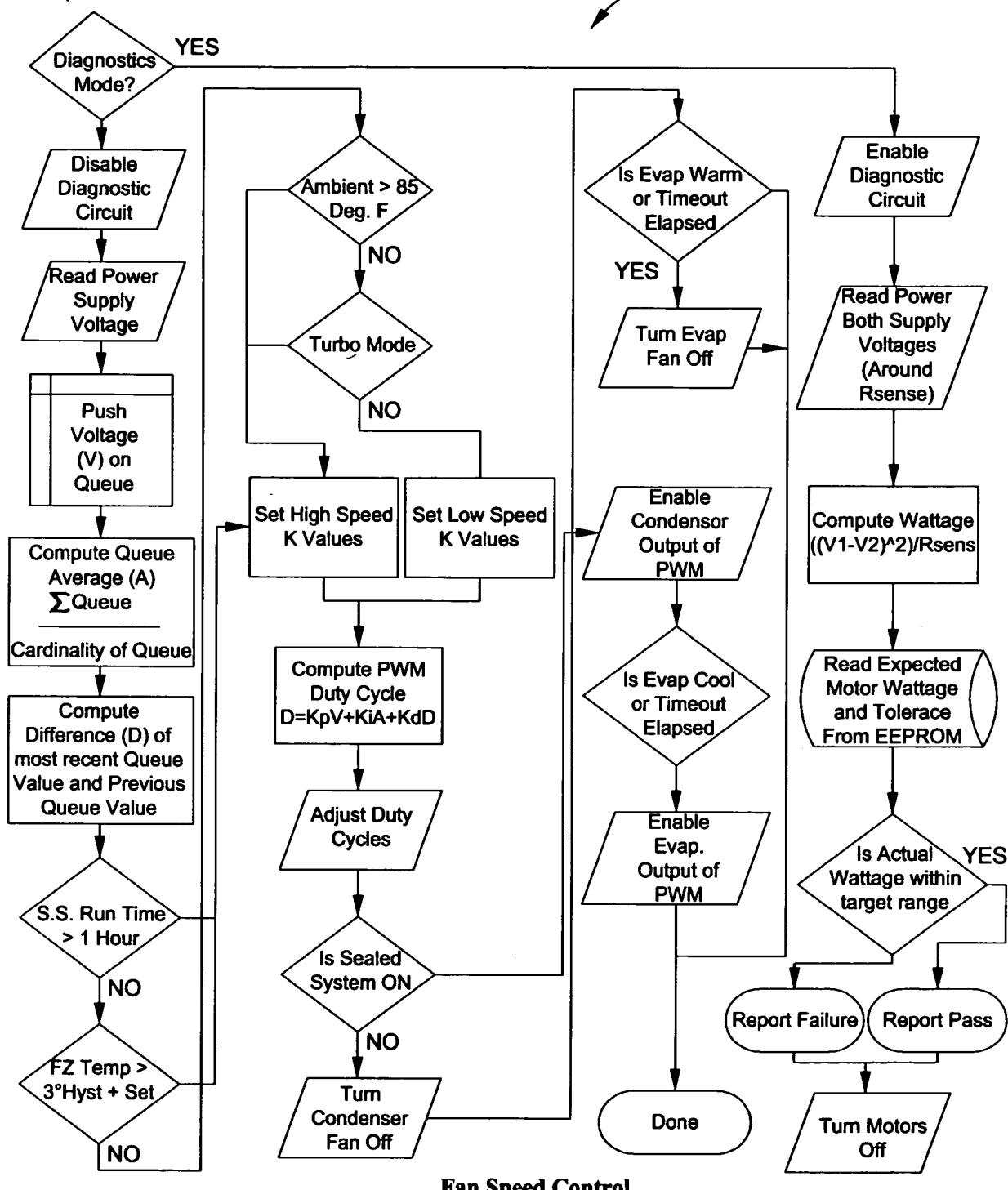
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Evap. & Cond.Fan Control:



Fan Speed Control

- Notes:
1. The FF & Evaporator fans will shut off for the first five minutes that the door is open
 2. Only one fan at a time can be on at a time during diagnostics.
 3. Once the fan has been switched to high speed, it remains in that state until the operational cycle is complete.

FIG. 35



SEARCHED
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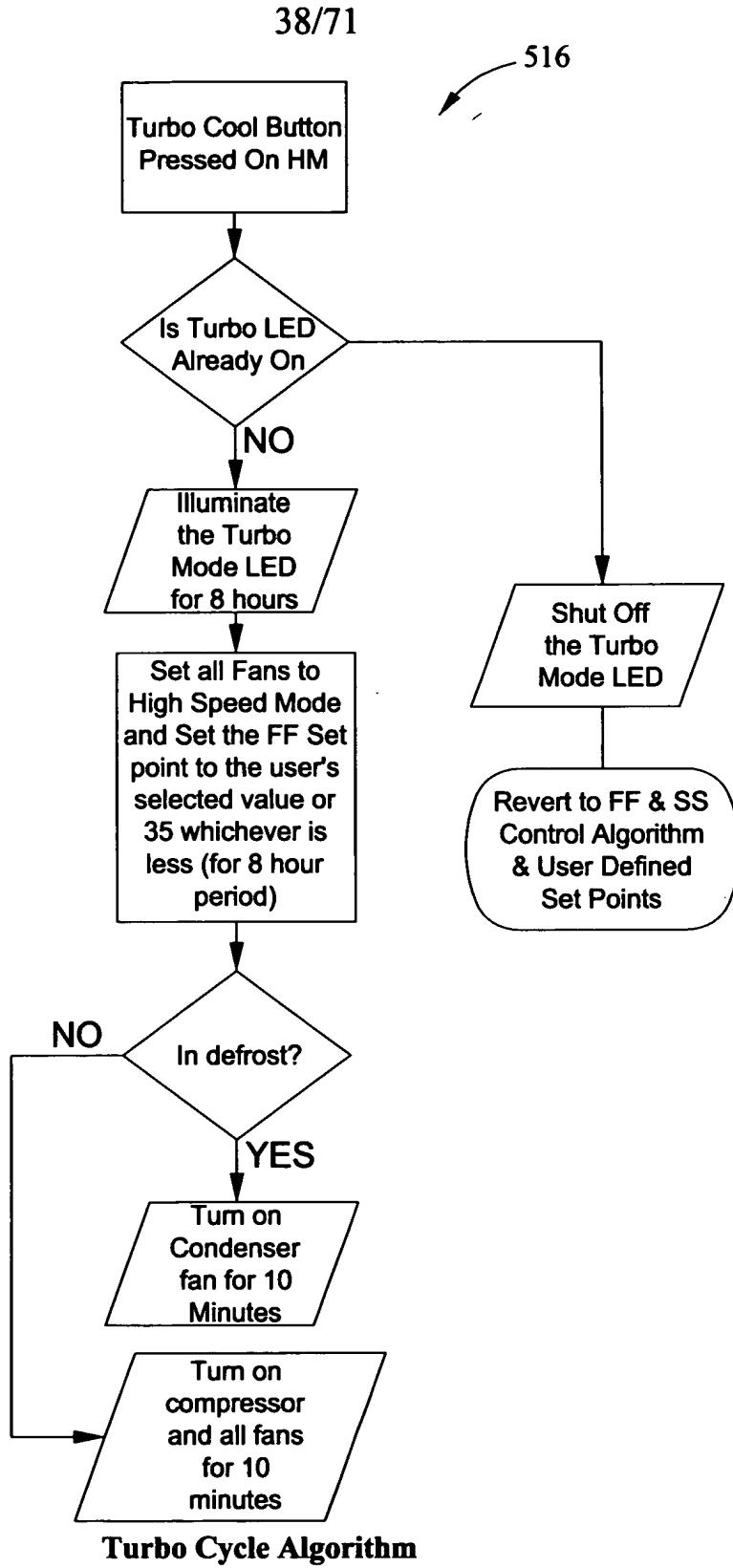
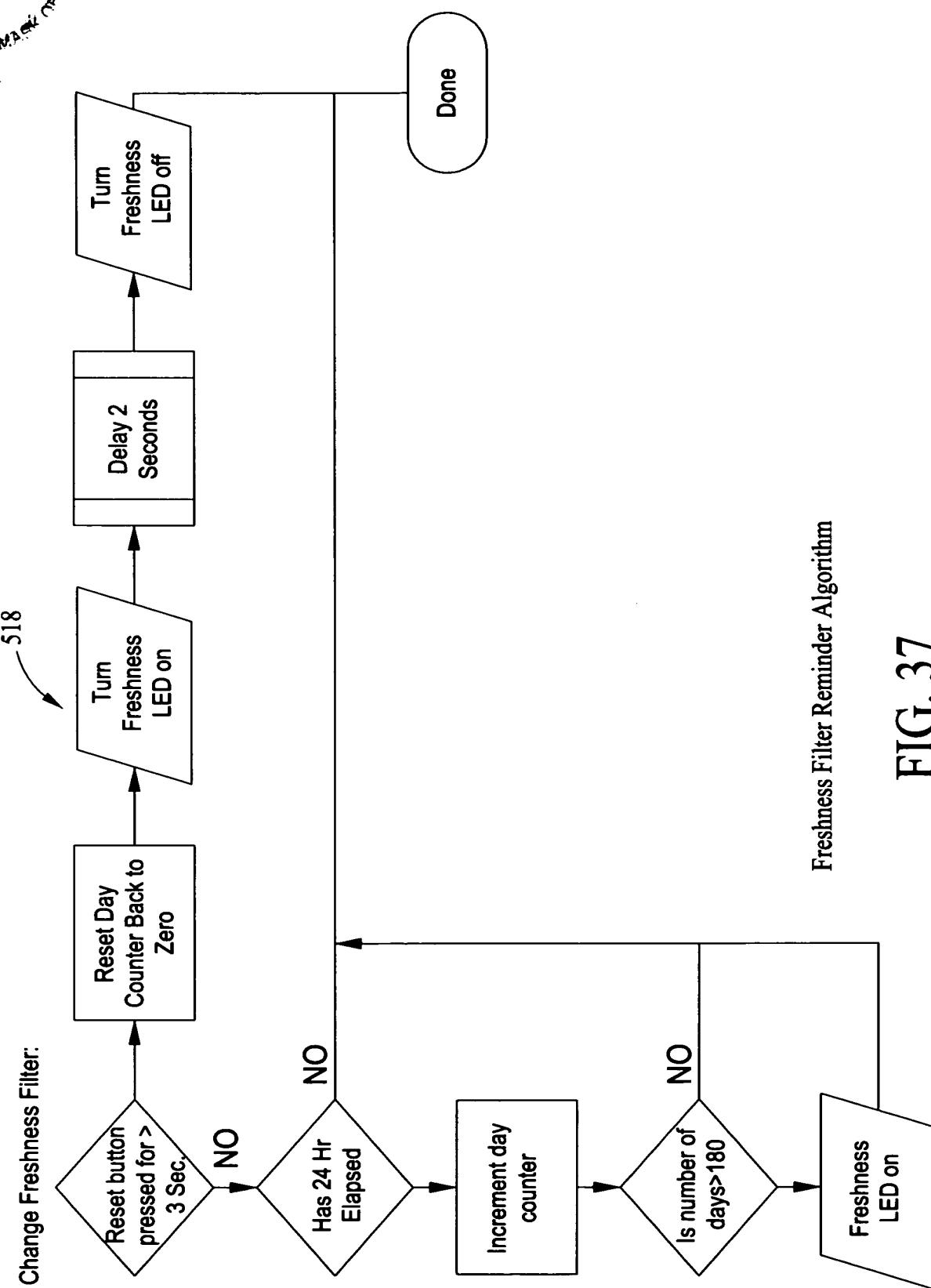


FIG. 36



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Freshness Filter Reminder Algorithm

FIG. 37



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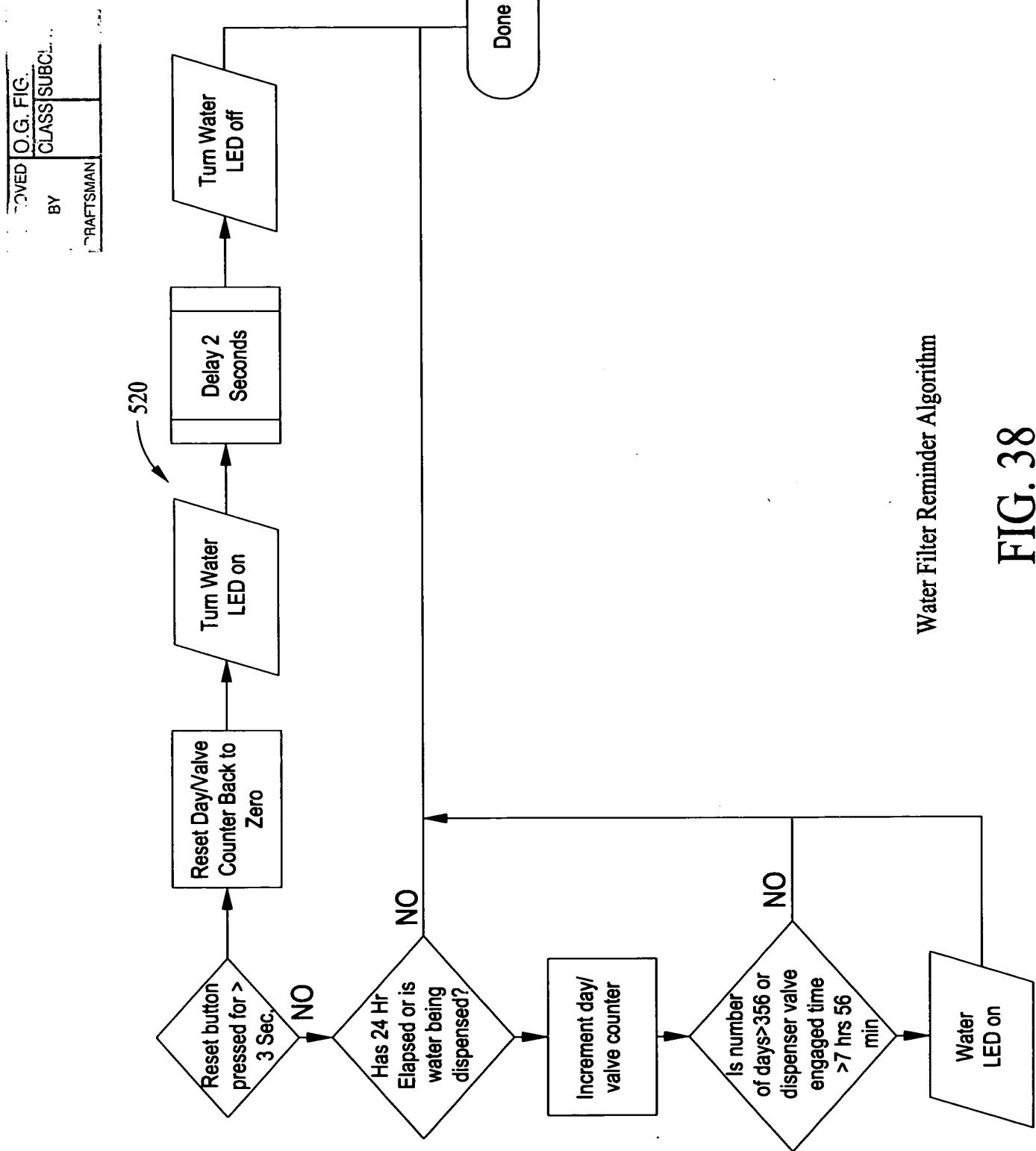


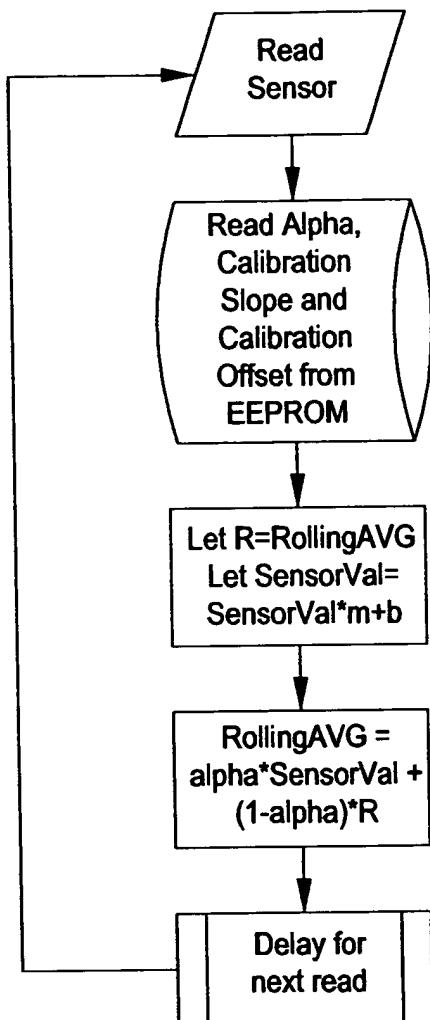
FIG. 38

Water Filter Reminder Algorithm

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SENSOR READ AND ROLLING AVERAGE ALGO:



Sensor Reading Algorithm

NOTE:

Fresh food average uses this algorithm twice to create a 2nd pole filter.

FIG. 39

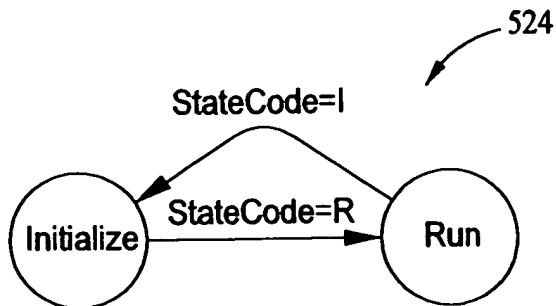


FIG. 40



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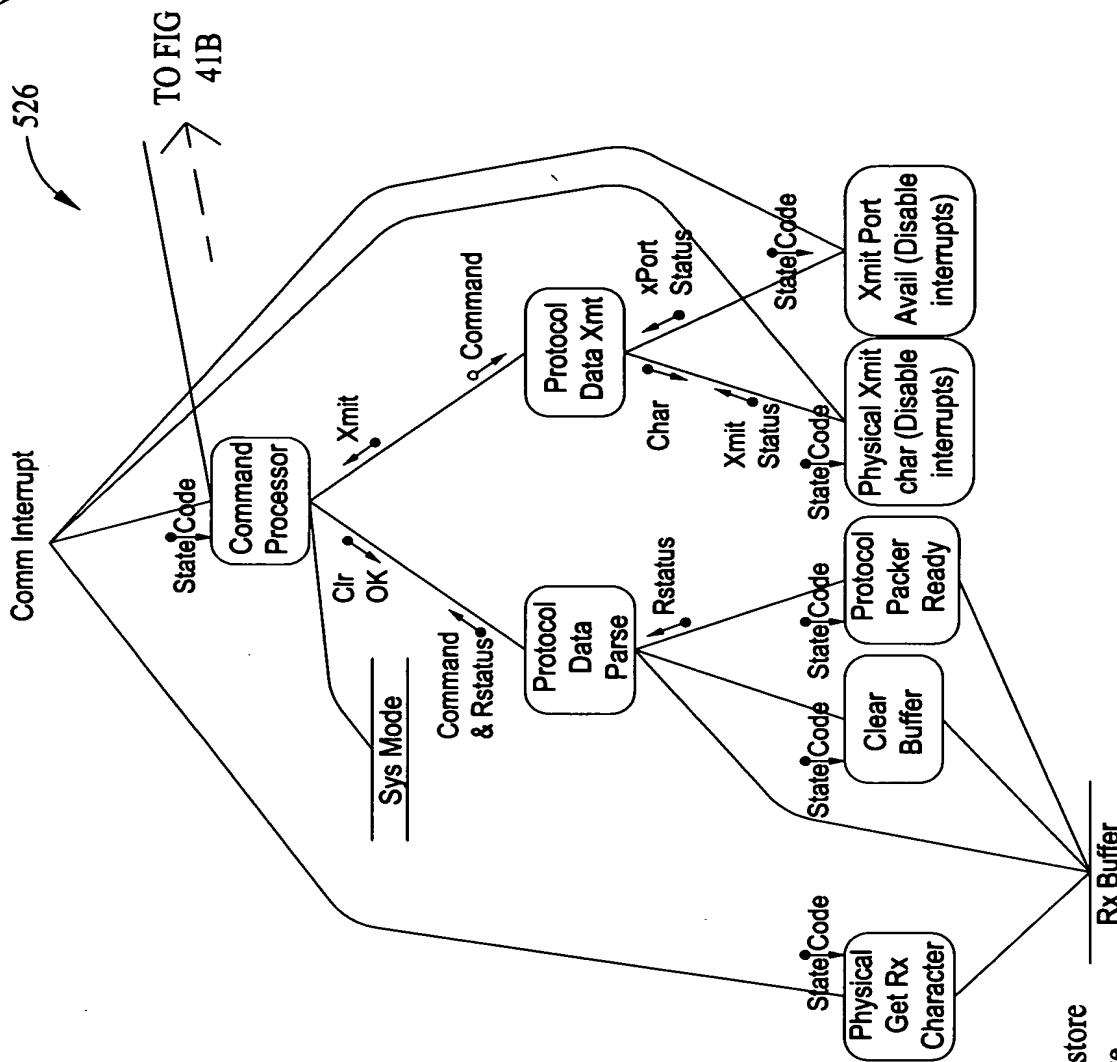


FIG. 41A

Note: Any Routine is allowed to read a data store
 The command processor can read or write
 any data store.

Dashed line indicates a path for initialization only



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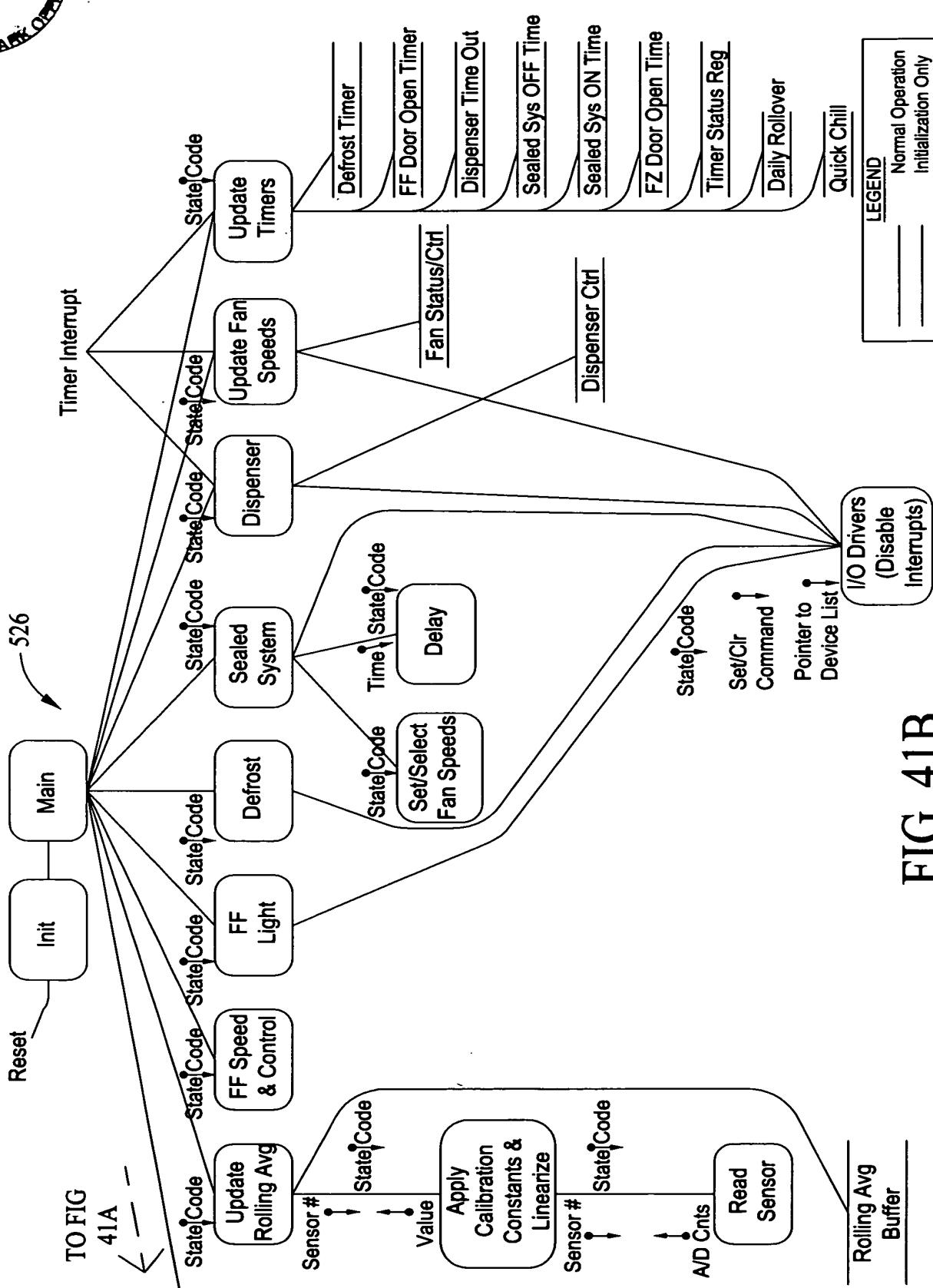


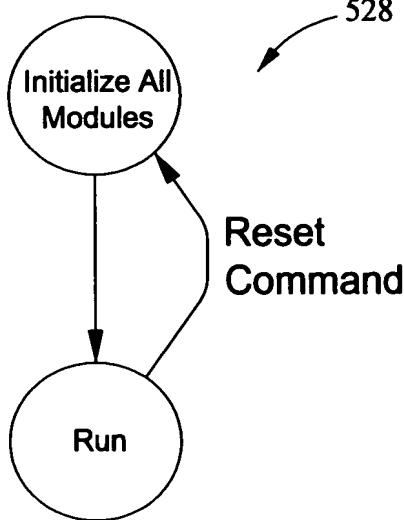
FIG. 41B



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State Diagram For Main Control

FIG. 42

HMI MAIN STATE MACHINE

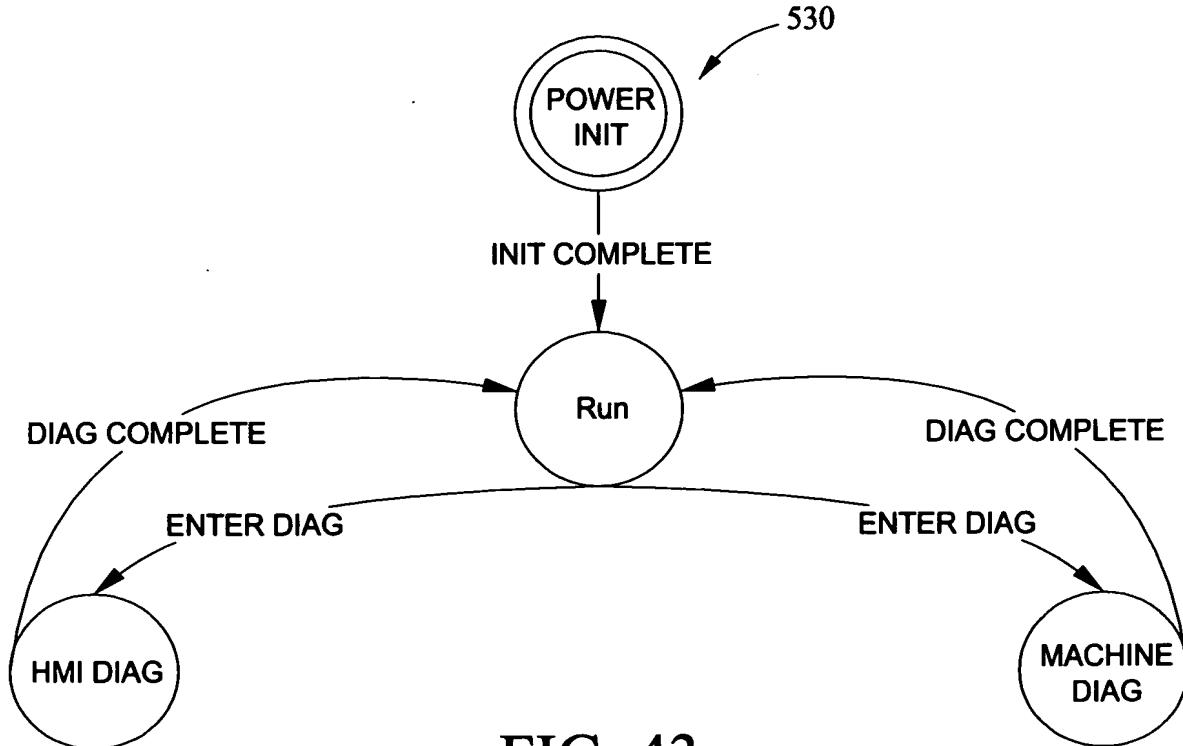


FIG. 43



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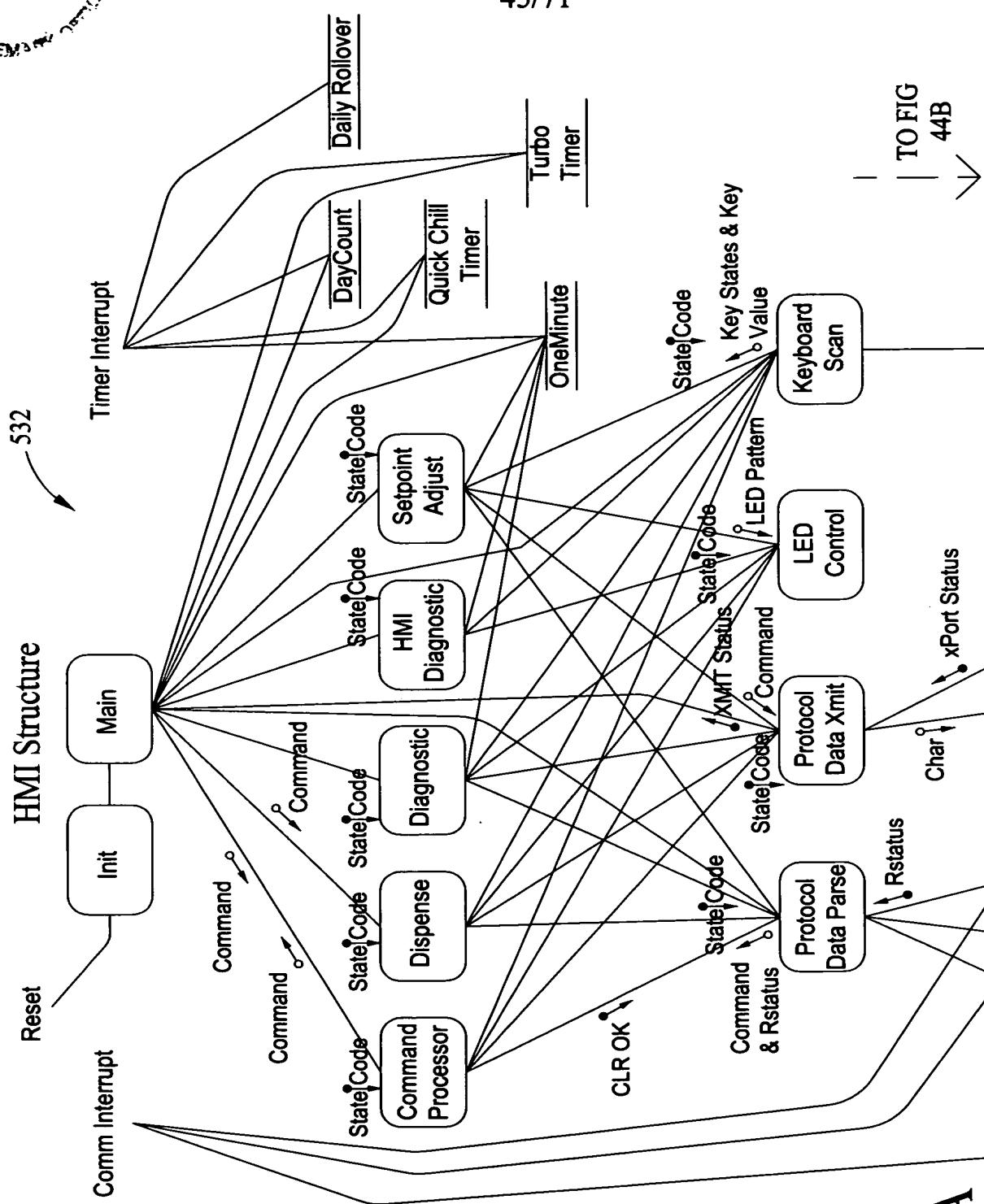
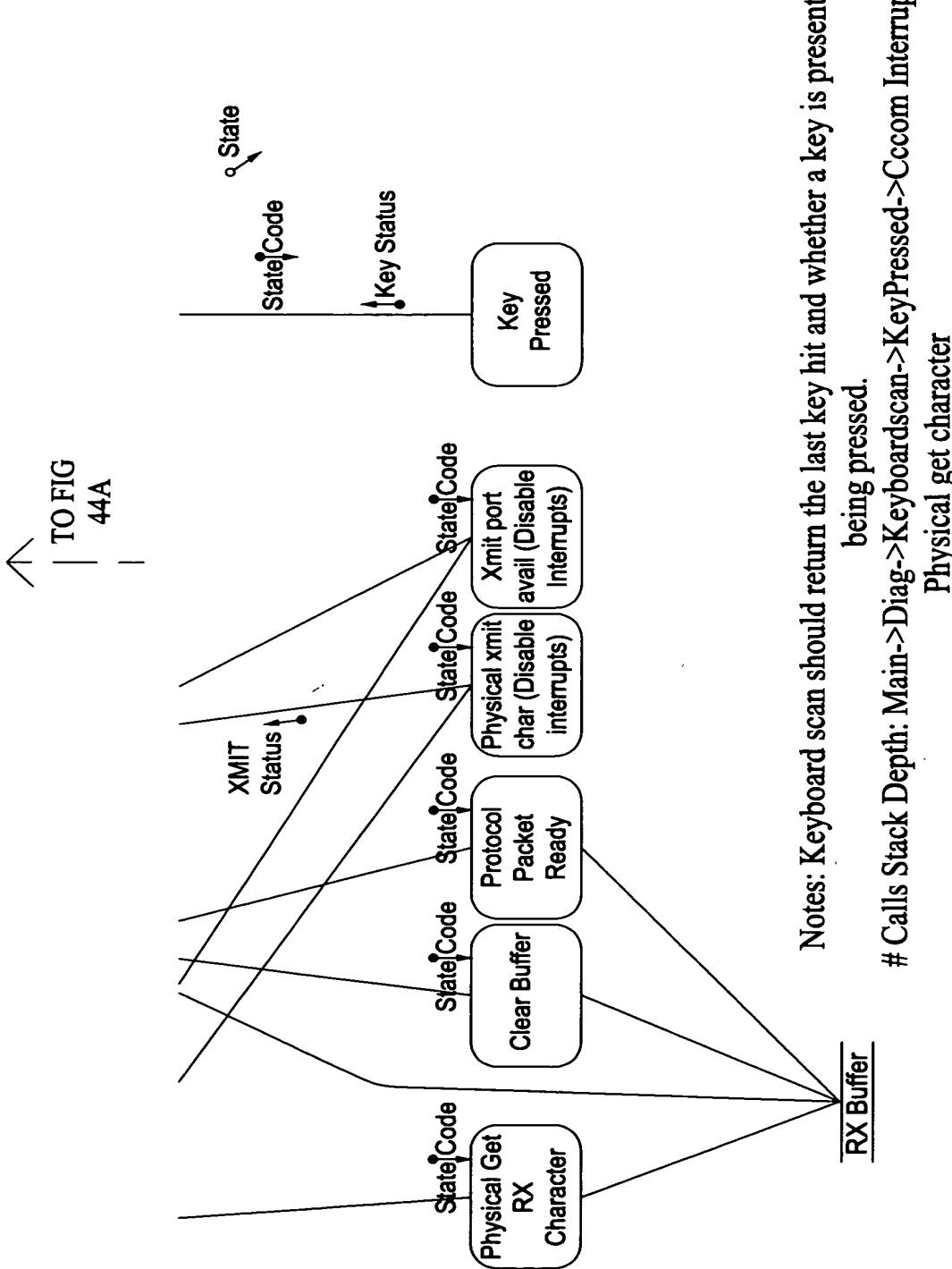


FIG. 44A

TO FIG
44B



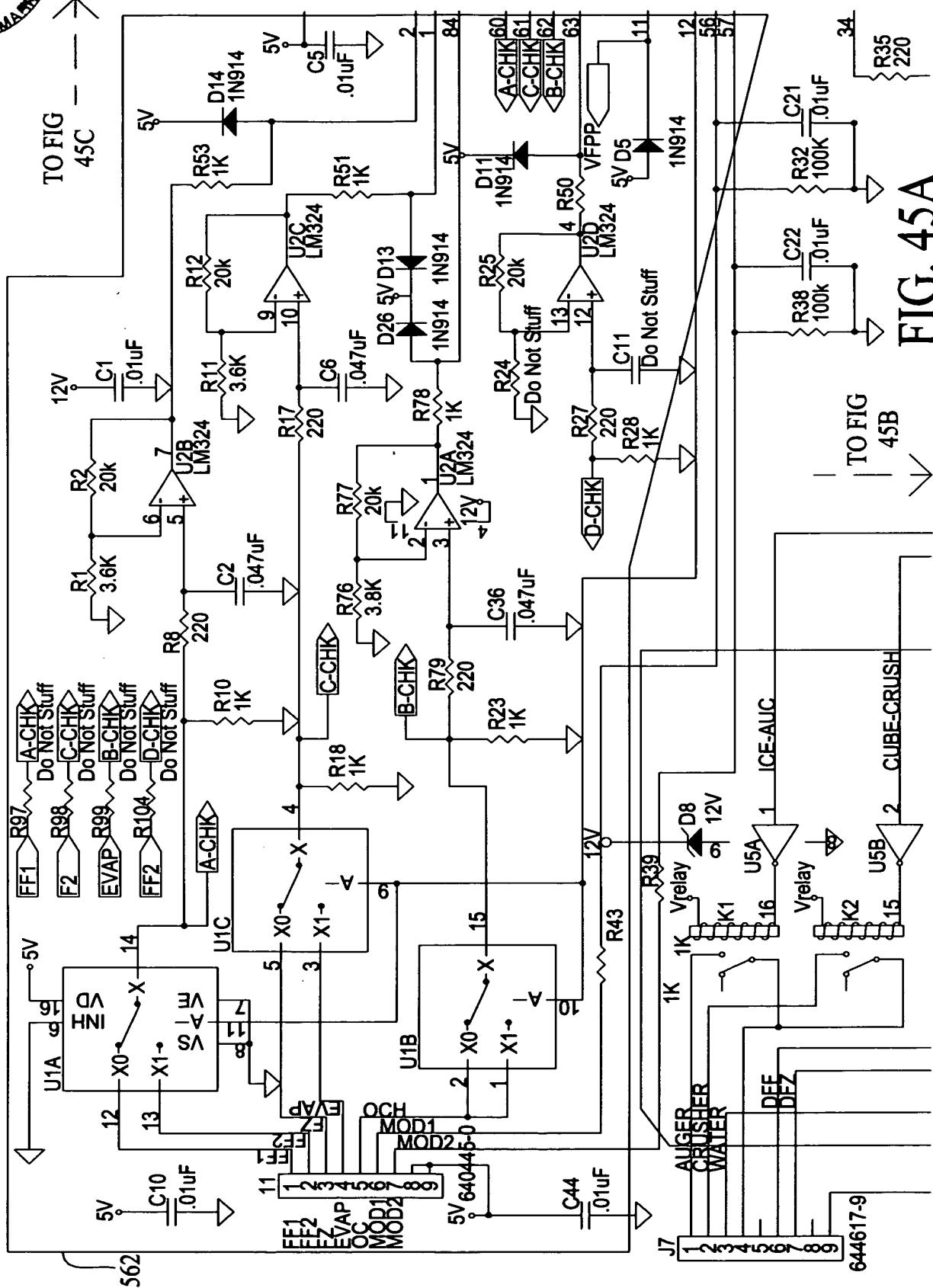
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St. Louis, MO 63102 (314) 621-5070

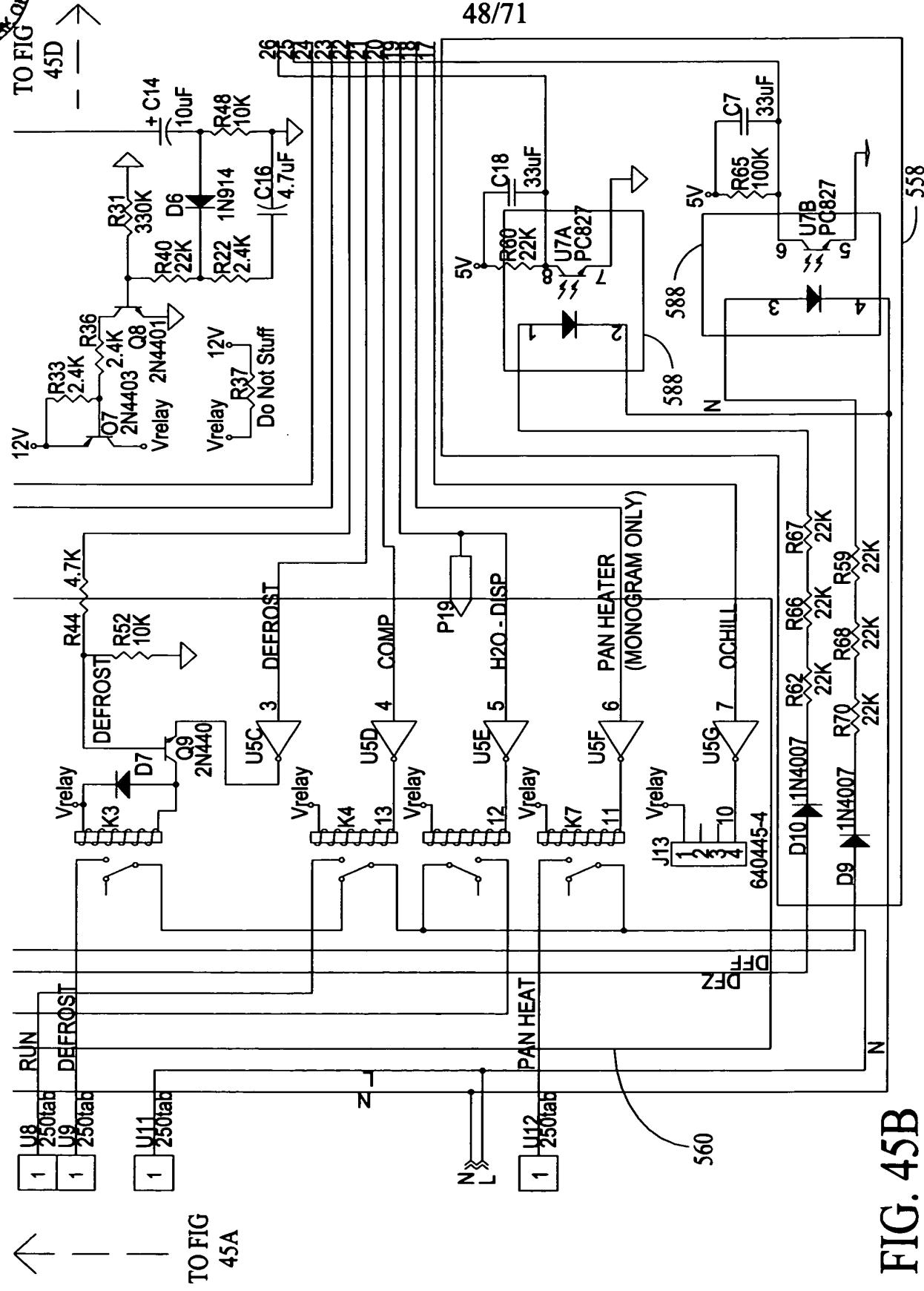
REMOVED BY O.G. FIG.
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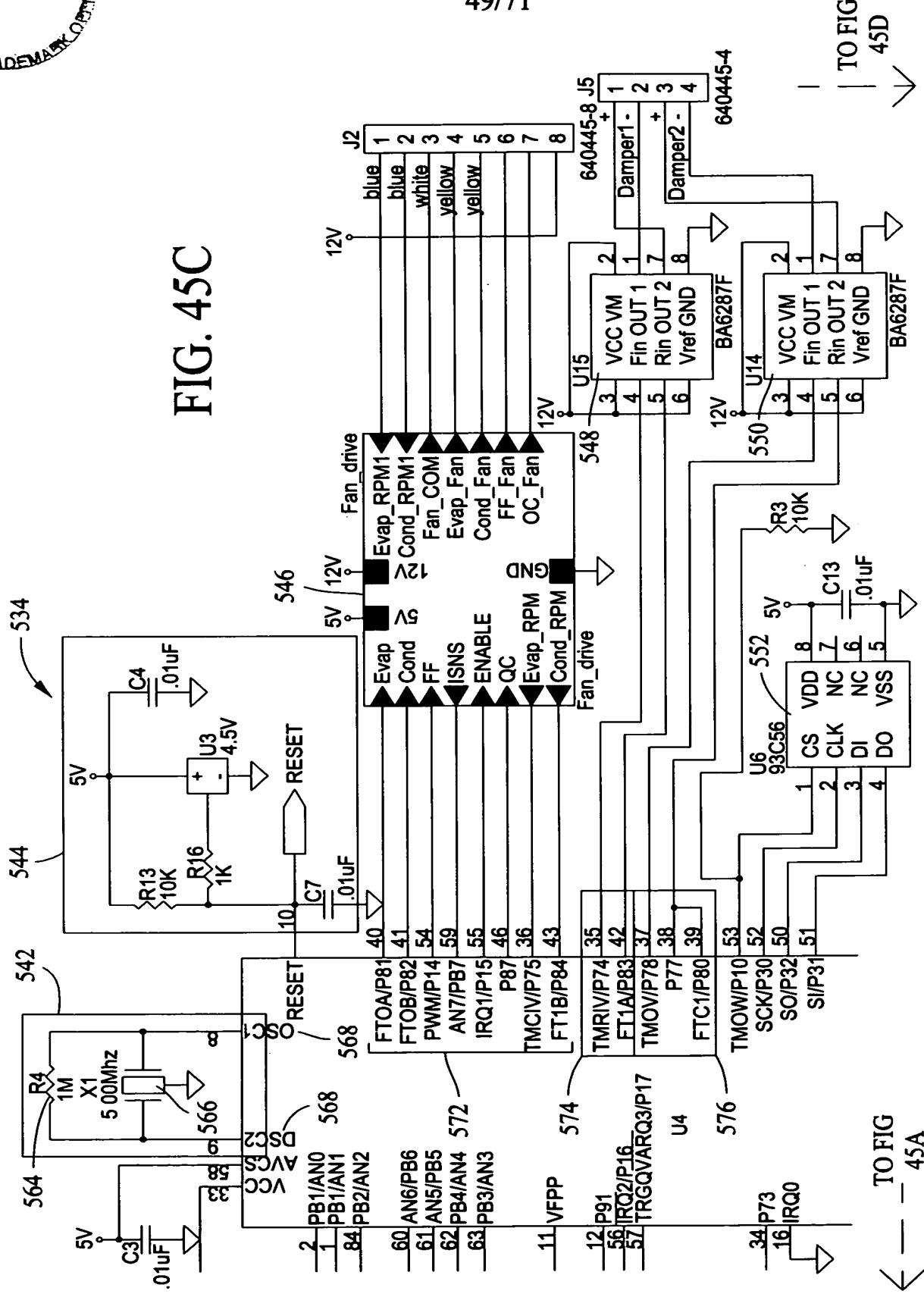
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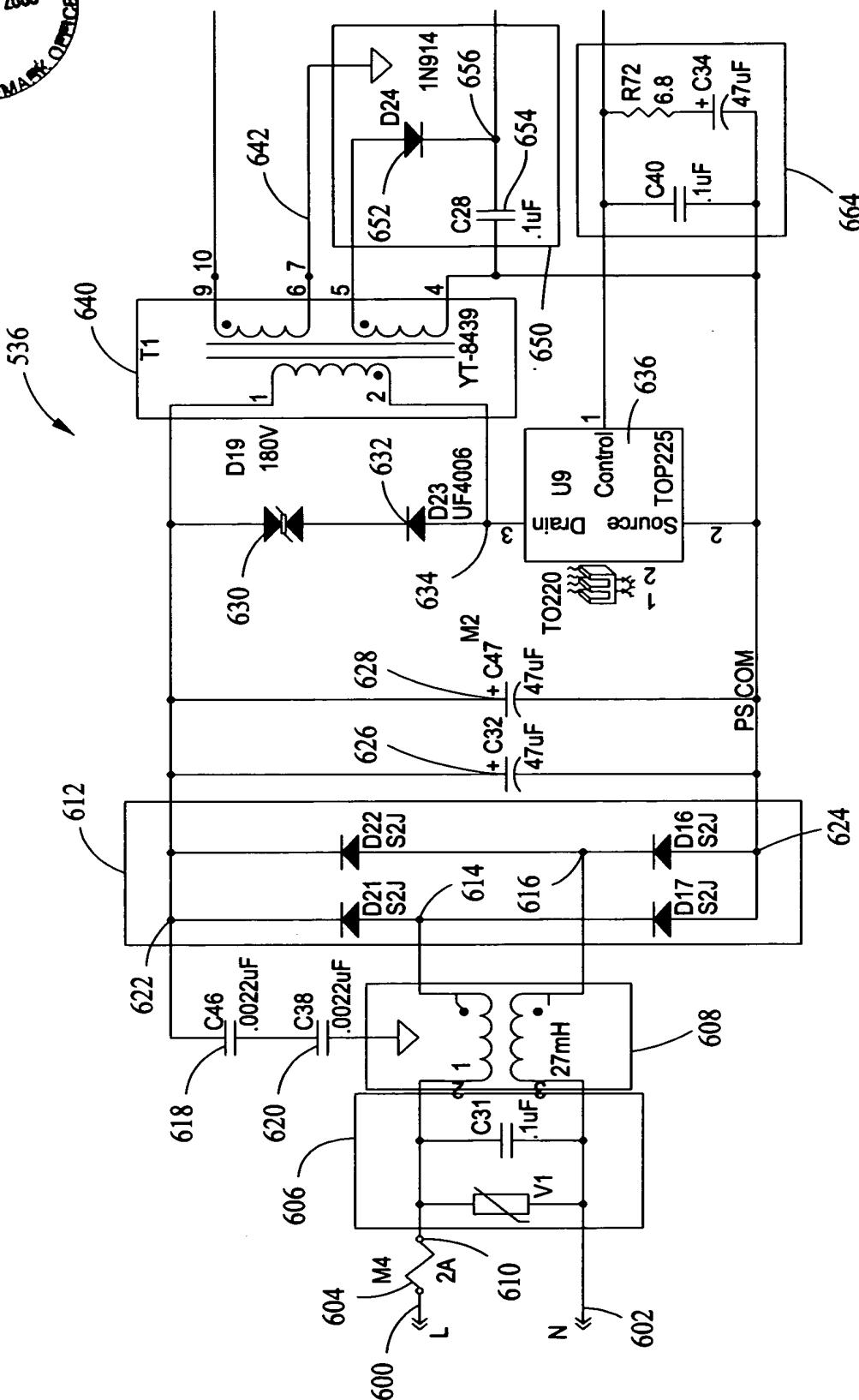
FIG. 45C





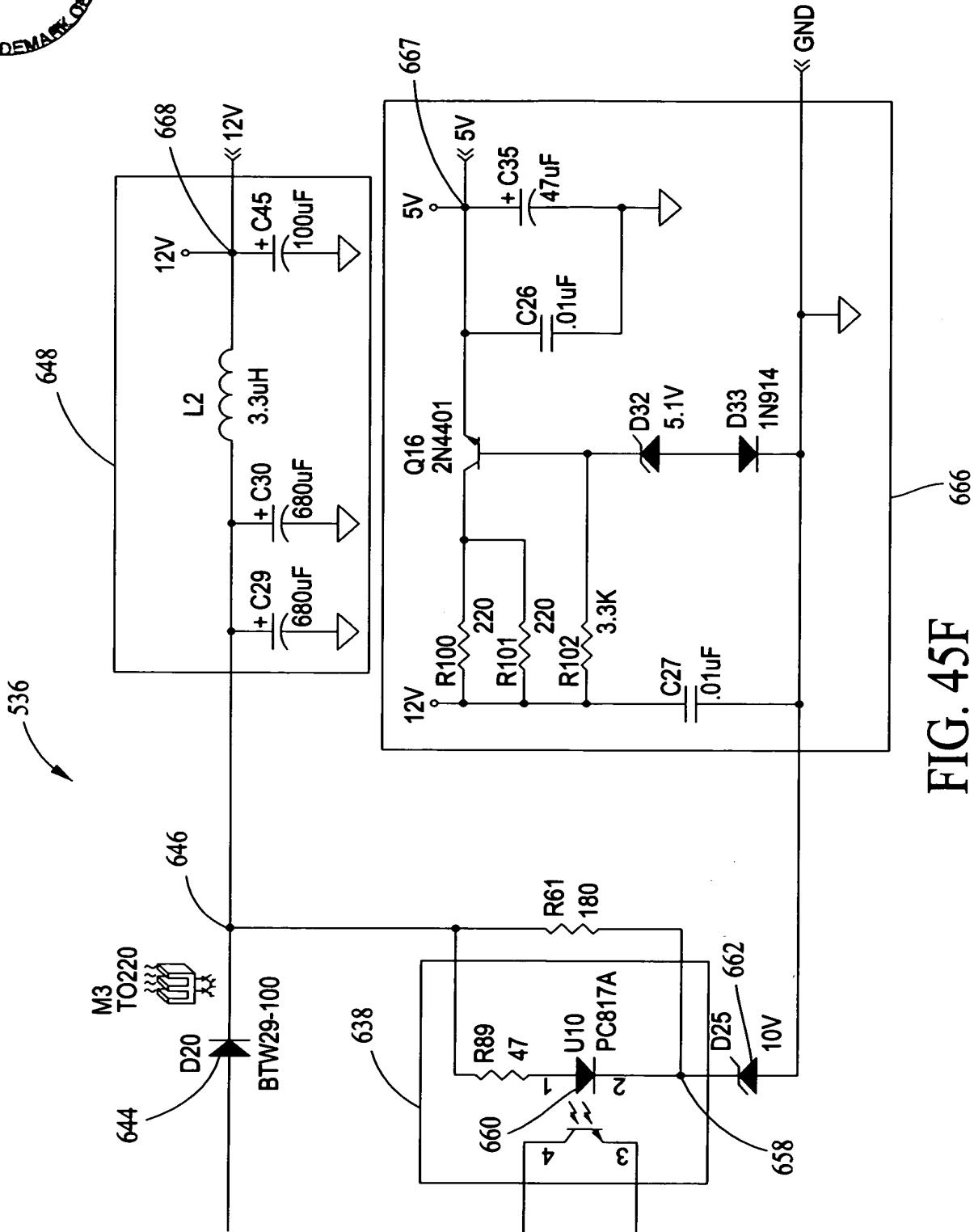
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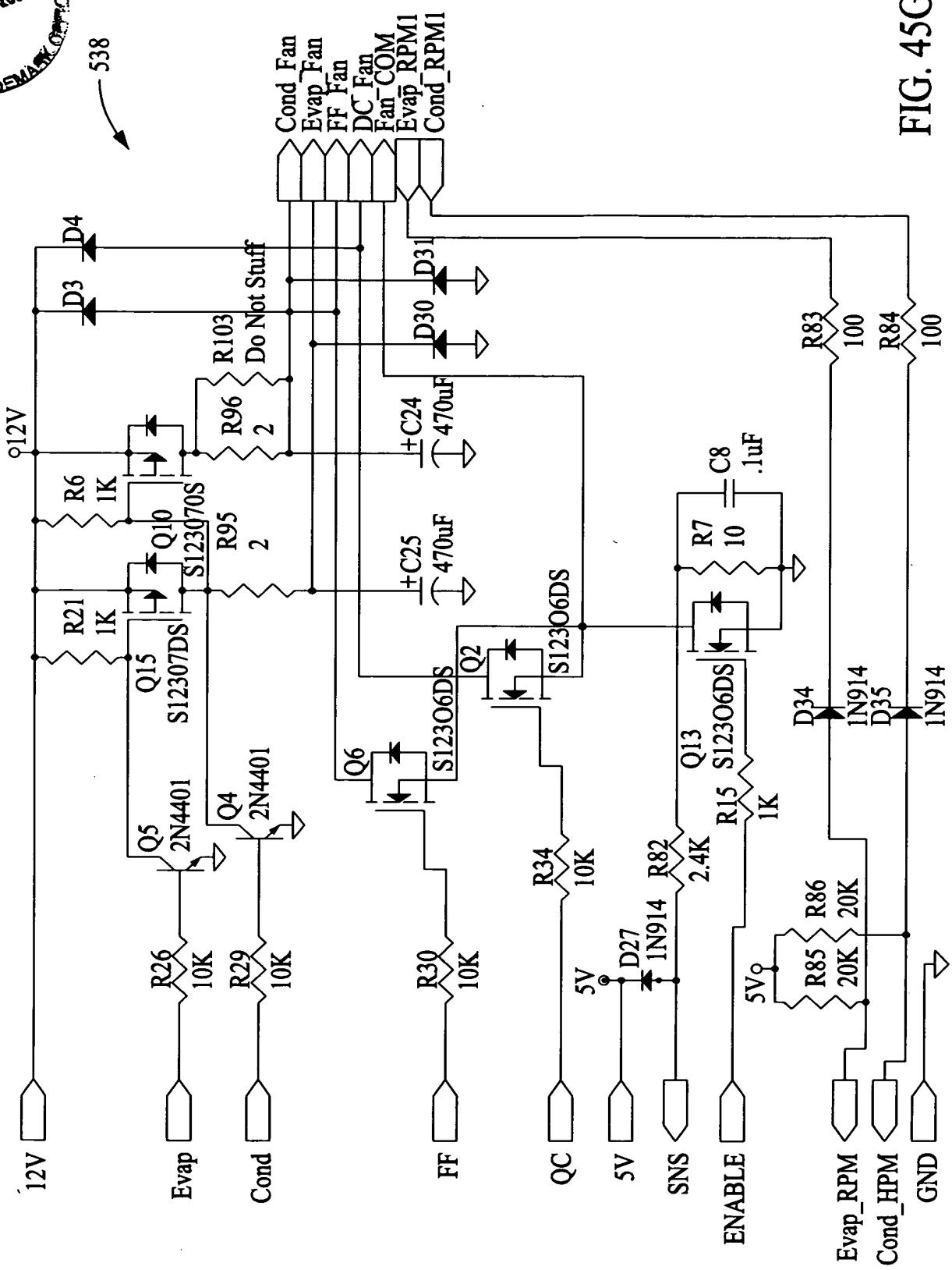
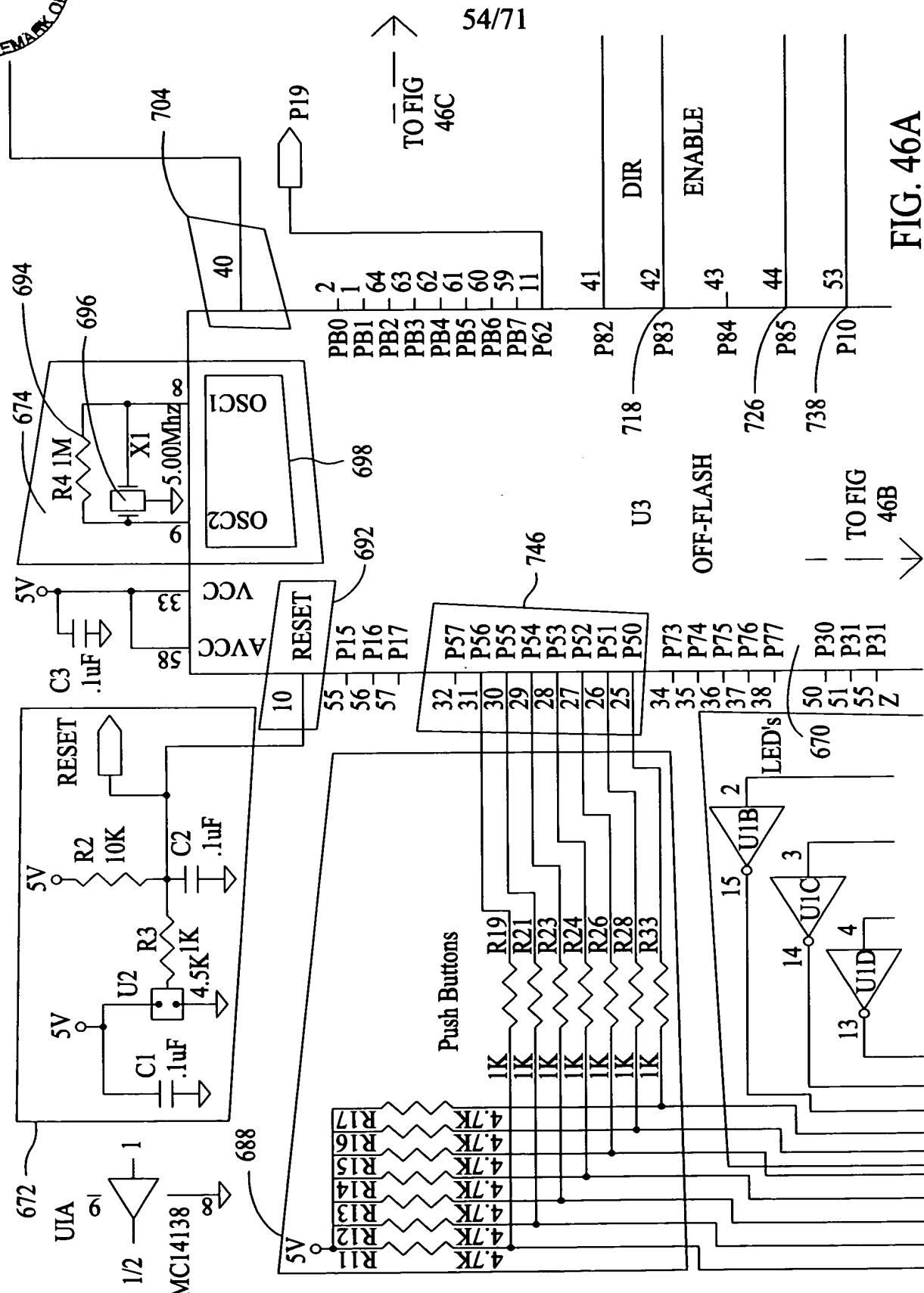


FIG. 45G



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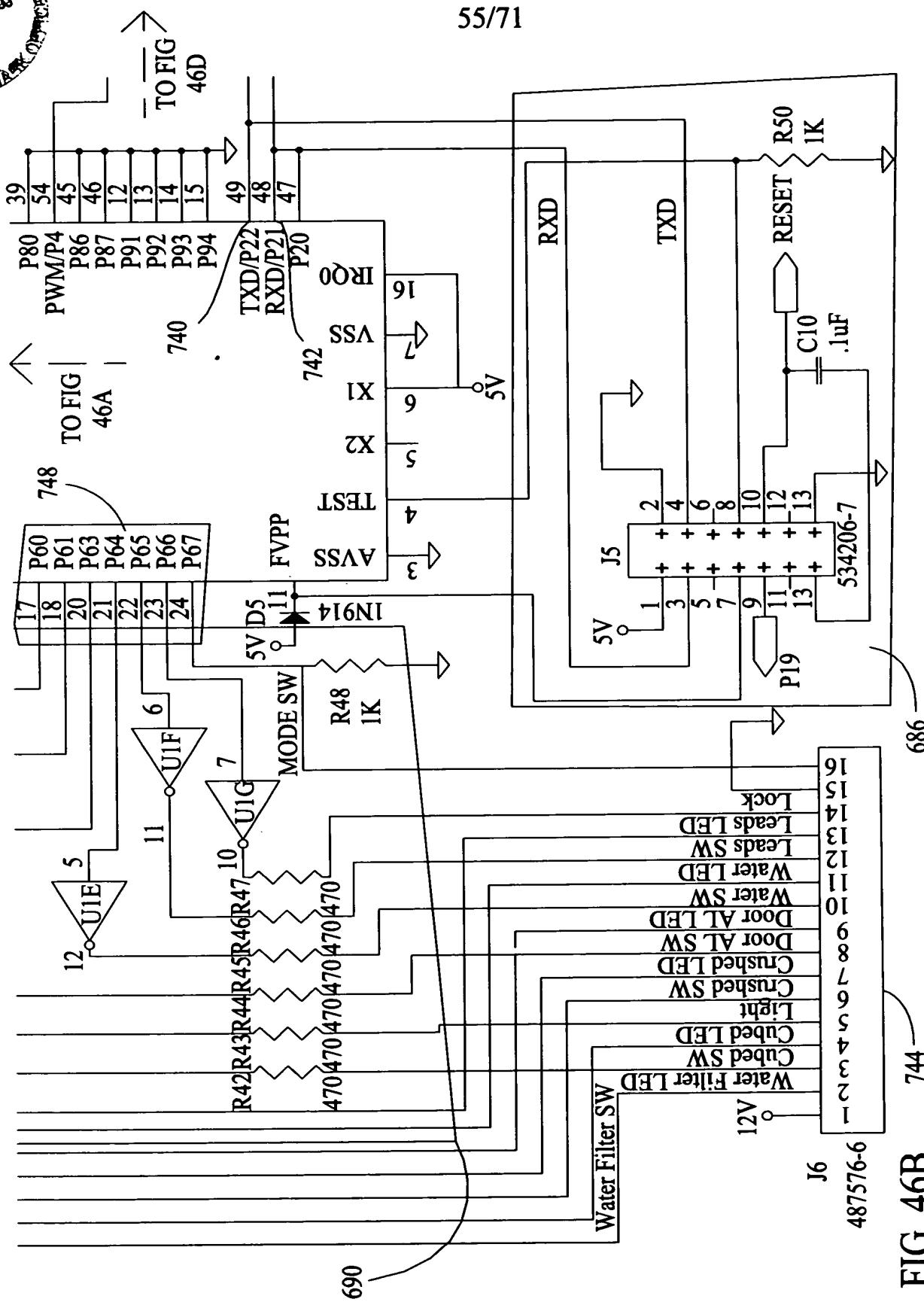
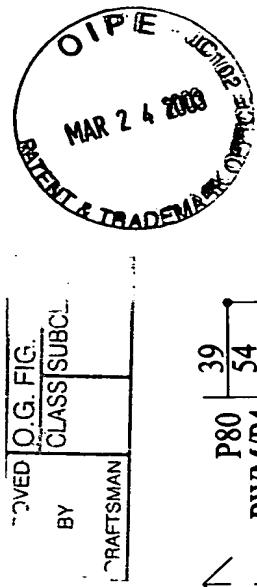


FIG. 46B

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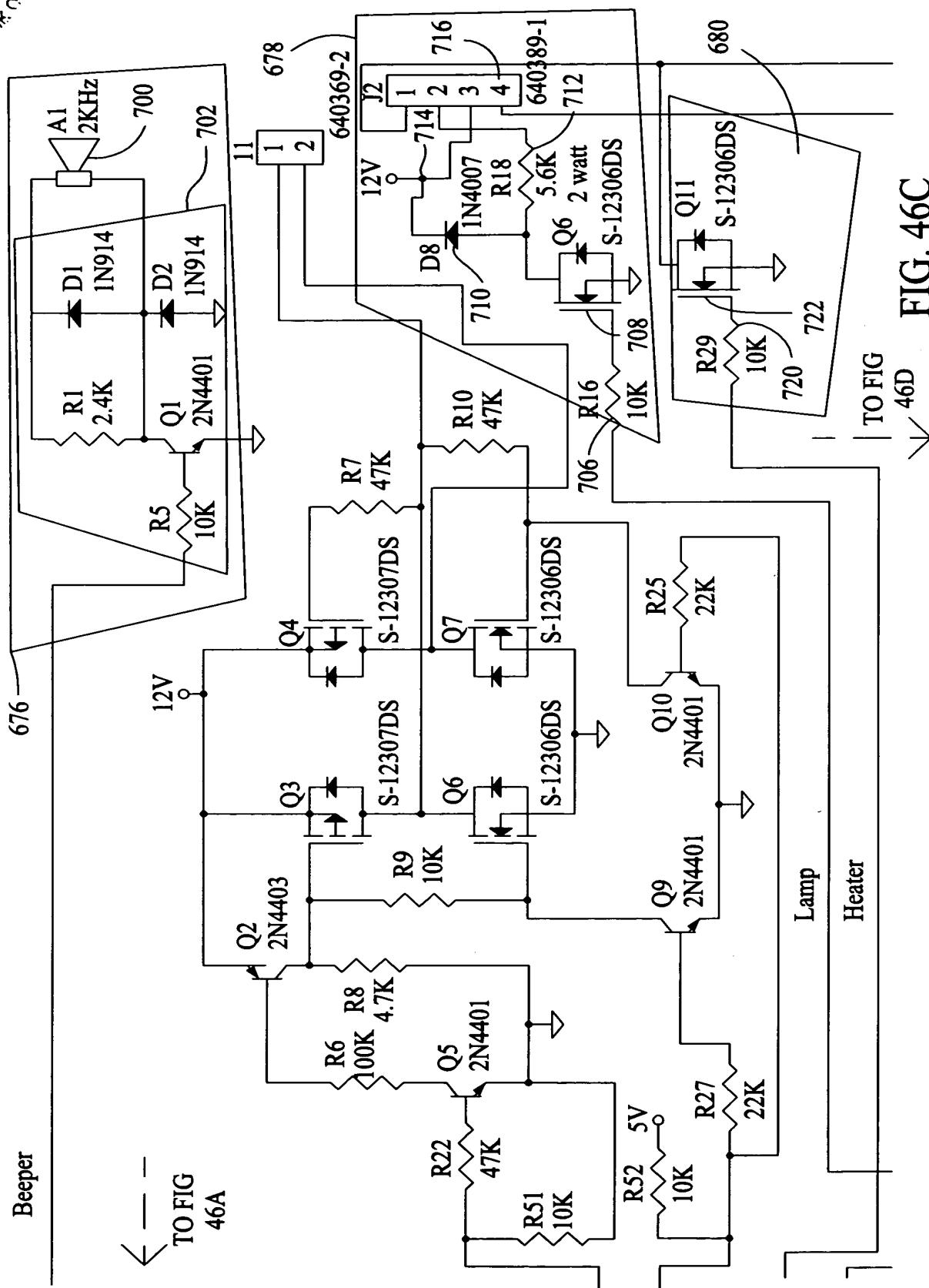
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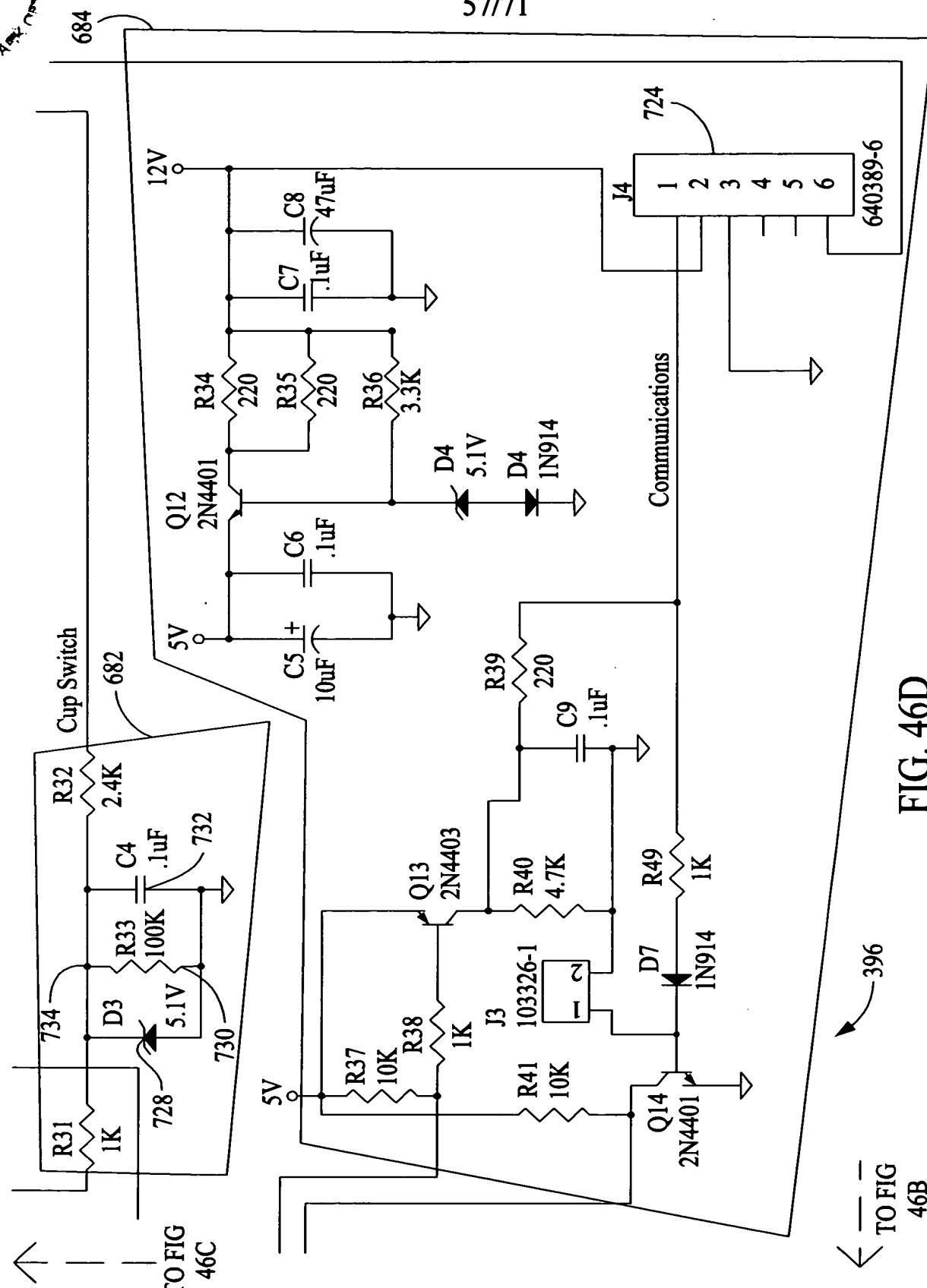


FIG. 46D



SEARCHED | O. G. FIG.
CLASS | SUBCL.
BY |
CRAFTSMAN |

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TO FIG
47C
— →

762 ↗
398 ↗

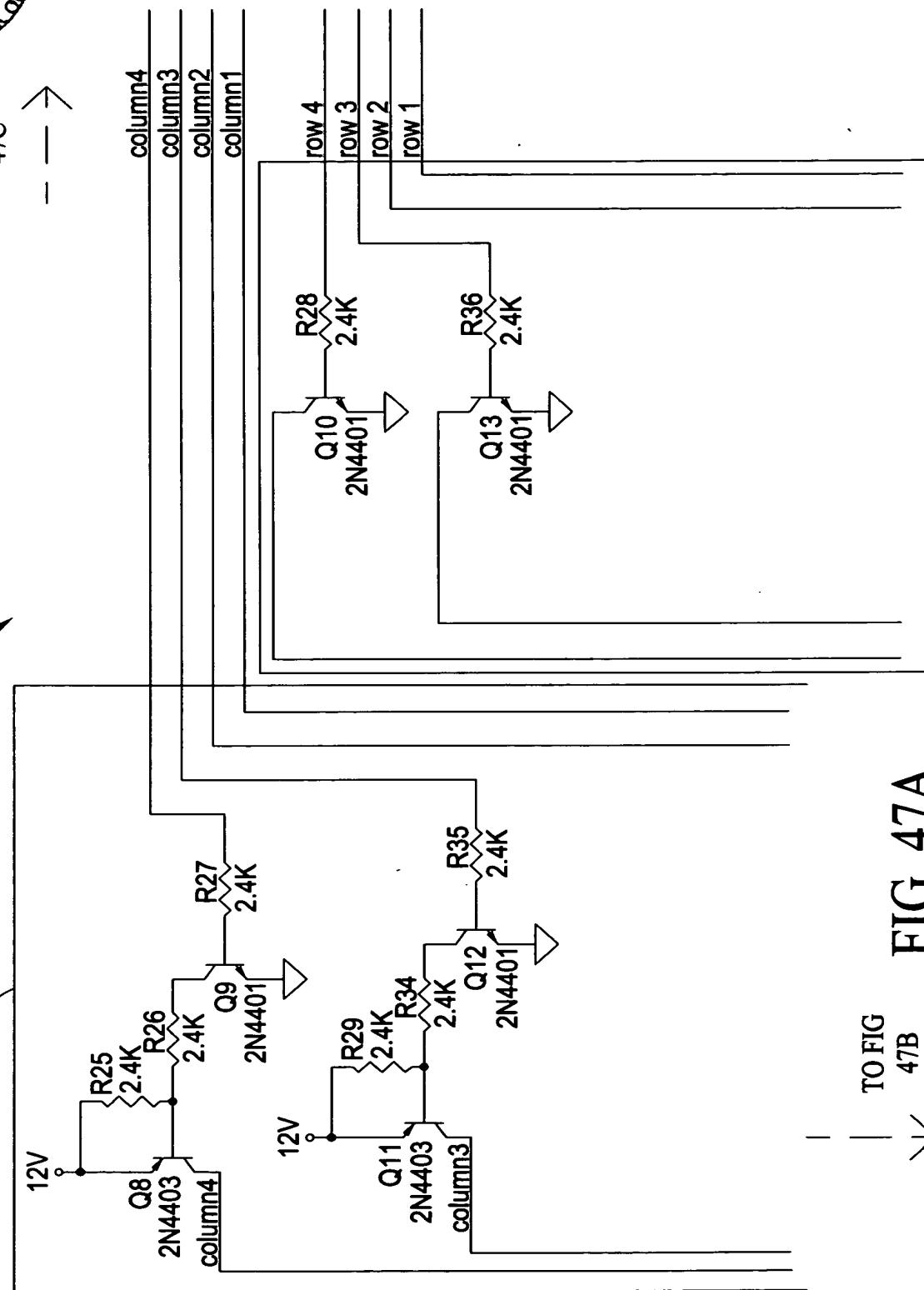


FIG. 47A

TO FIG
47B
↓

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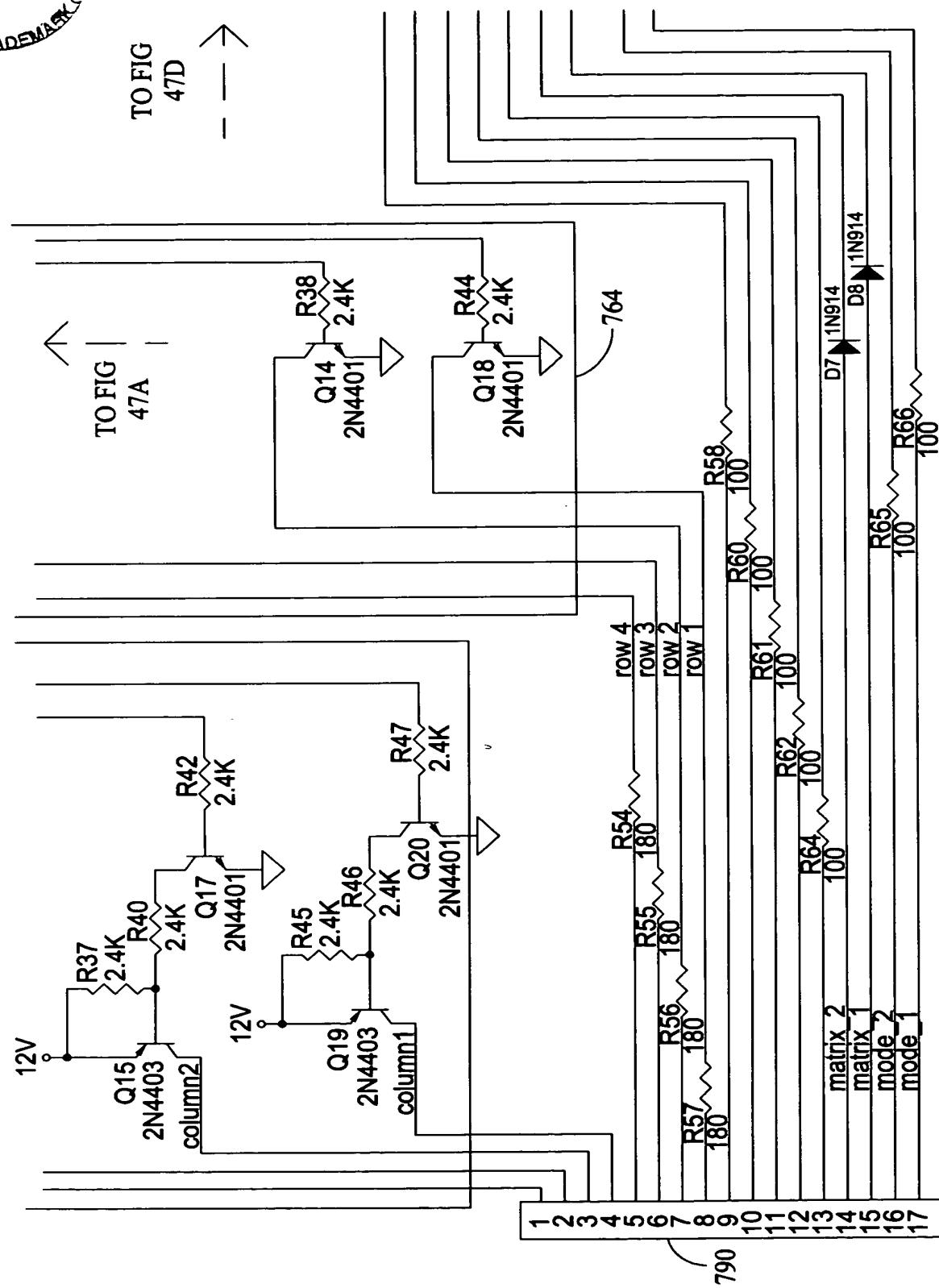


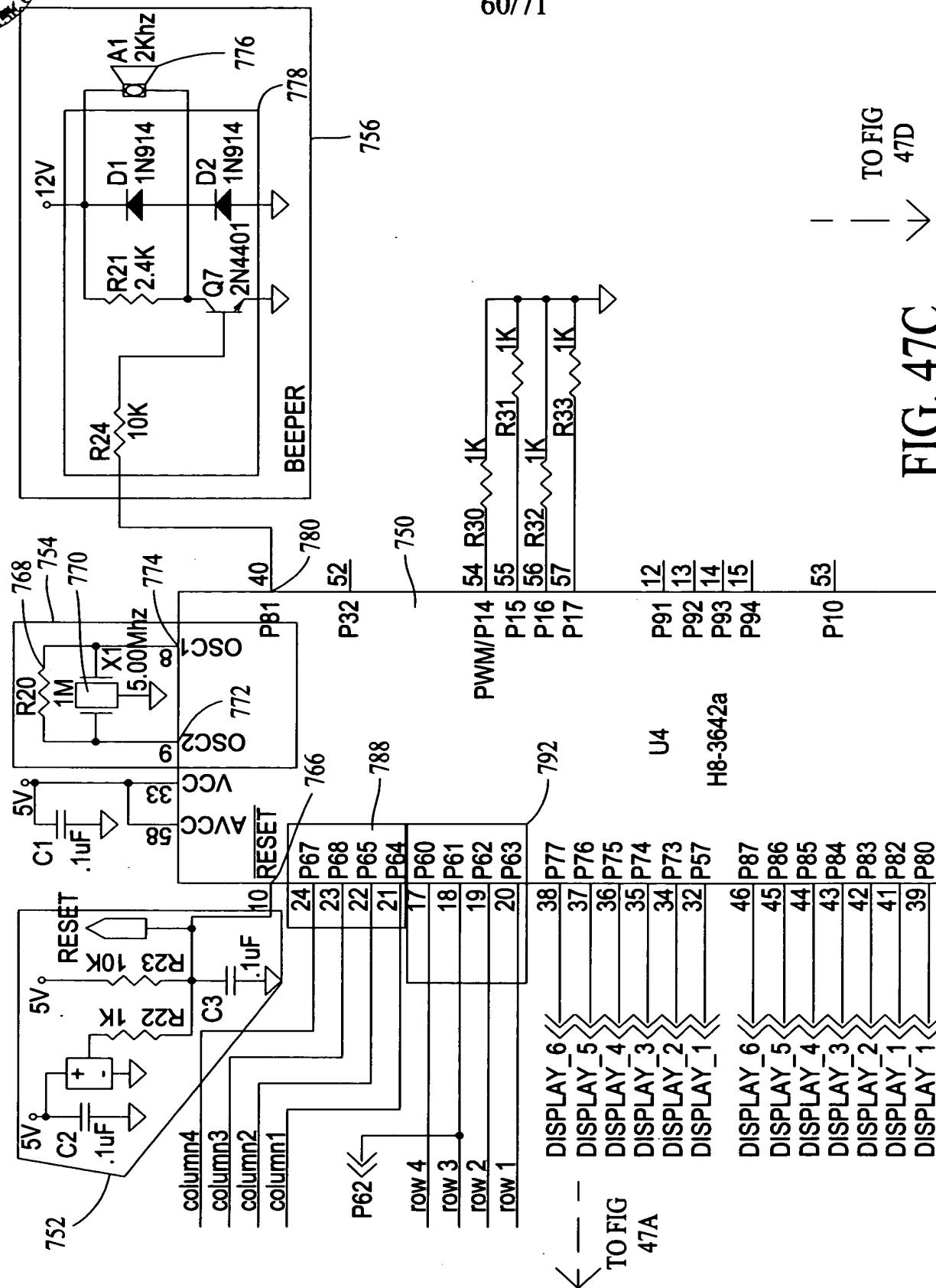
FIG. 47B

487576-9



Applicant: Holmes et al.; Serial No.: 09/754,600; Atty. Dkt. No.: 9D-HR-19406
Title: REFRIGERATOR SYSTEM AND SOFTWARE ARCHITECTURE
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St. Louis, MO 63102 (314) 621-5070

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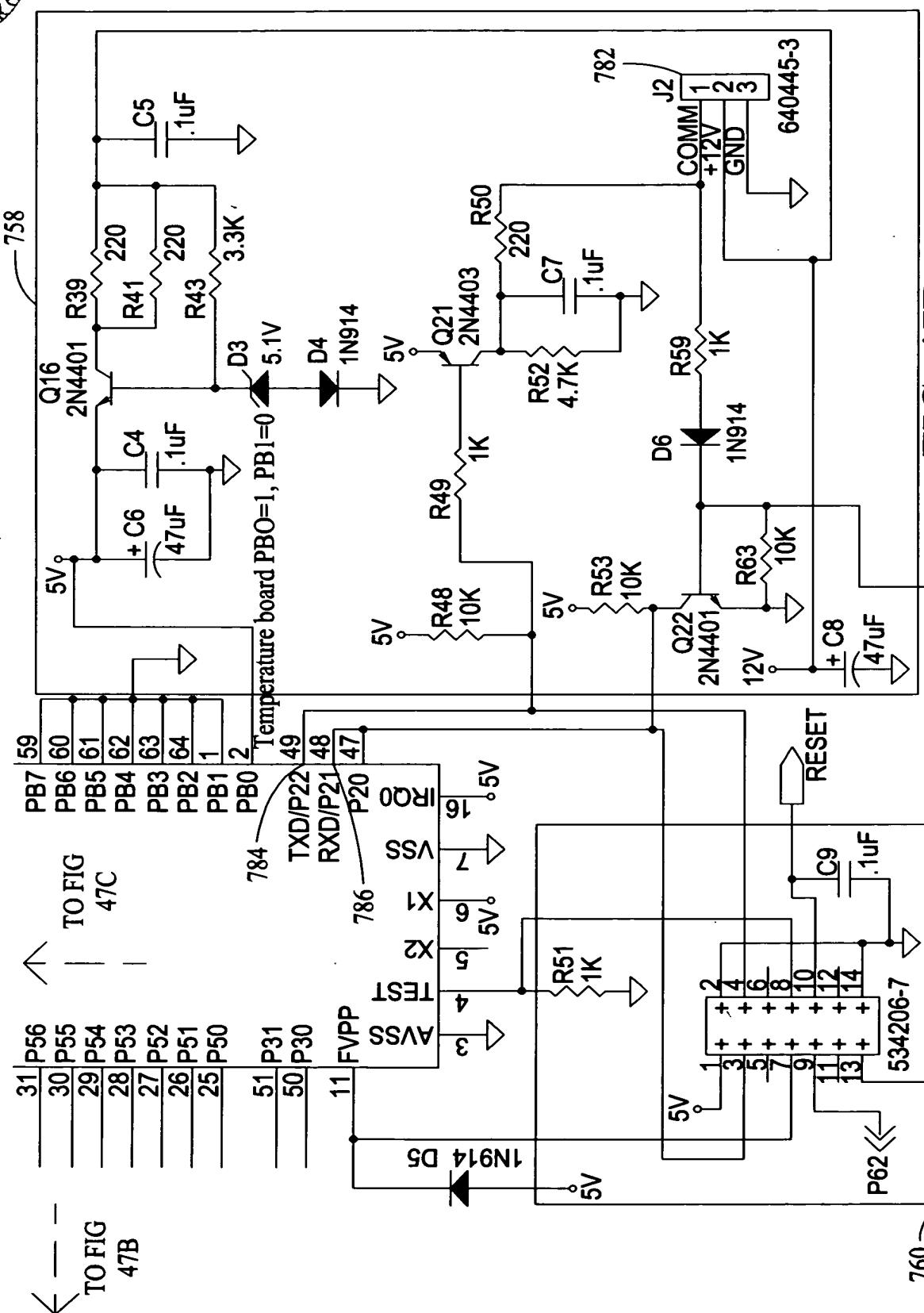


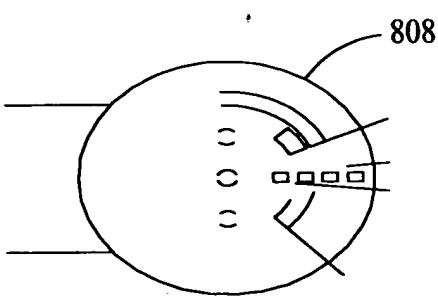
FIG. 47D

App. No. 10/611,344, U.S. Pat. No. 6,872,000, May 2005
Title: REFRIGERATOR SYSTEM AND SOFTWARE
ARCHITECTURE

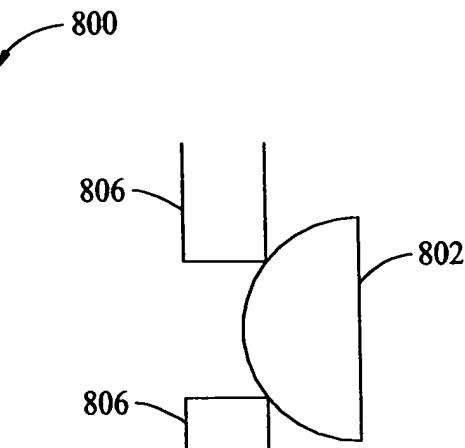
John S. Beulick, Armstrong Teasdale LLP, One Metropolitan Square,
Suite 2600, St. Louis, MO 63102 (314) 621-5070

SEARCHED O.G. FIG.
CLASS 521 SUBCL.
BY CRAFTSMAN

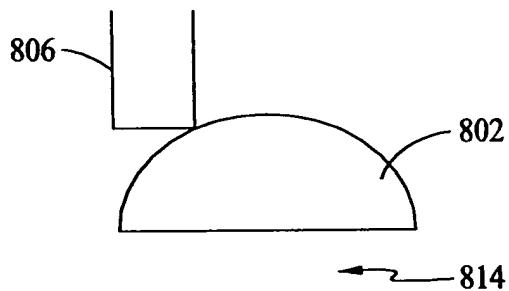
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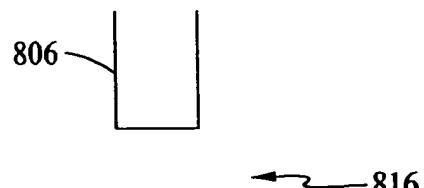
Contact Construct



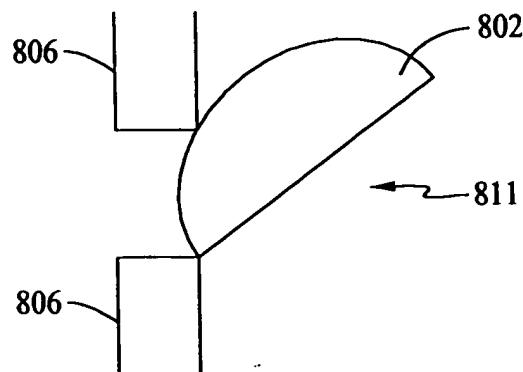
Defrost



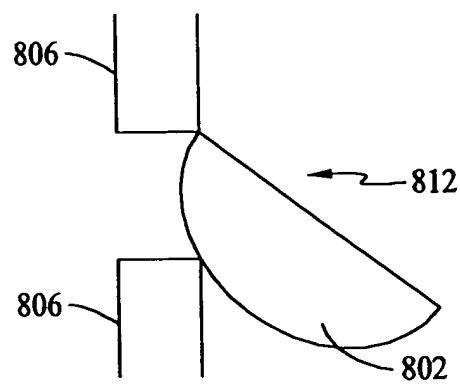
Compressor On / FF Open



Compressor Off / FF Open



Compressor On / FF Closed



Compressor Off / FF Closed

FIG. 48

**Applicant: Holmes et al.; Serial No.: 09/754,600; Atty. Dkt. No.: 9D-HR-19406
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Compressor Condenser Fan

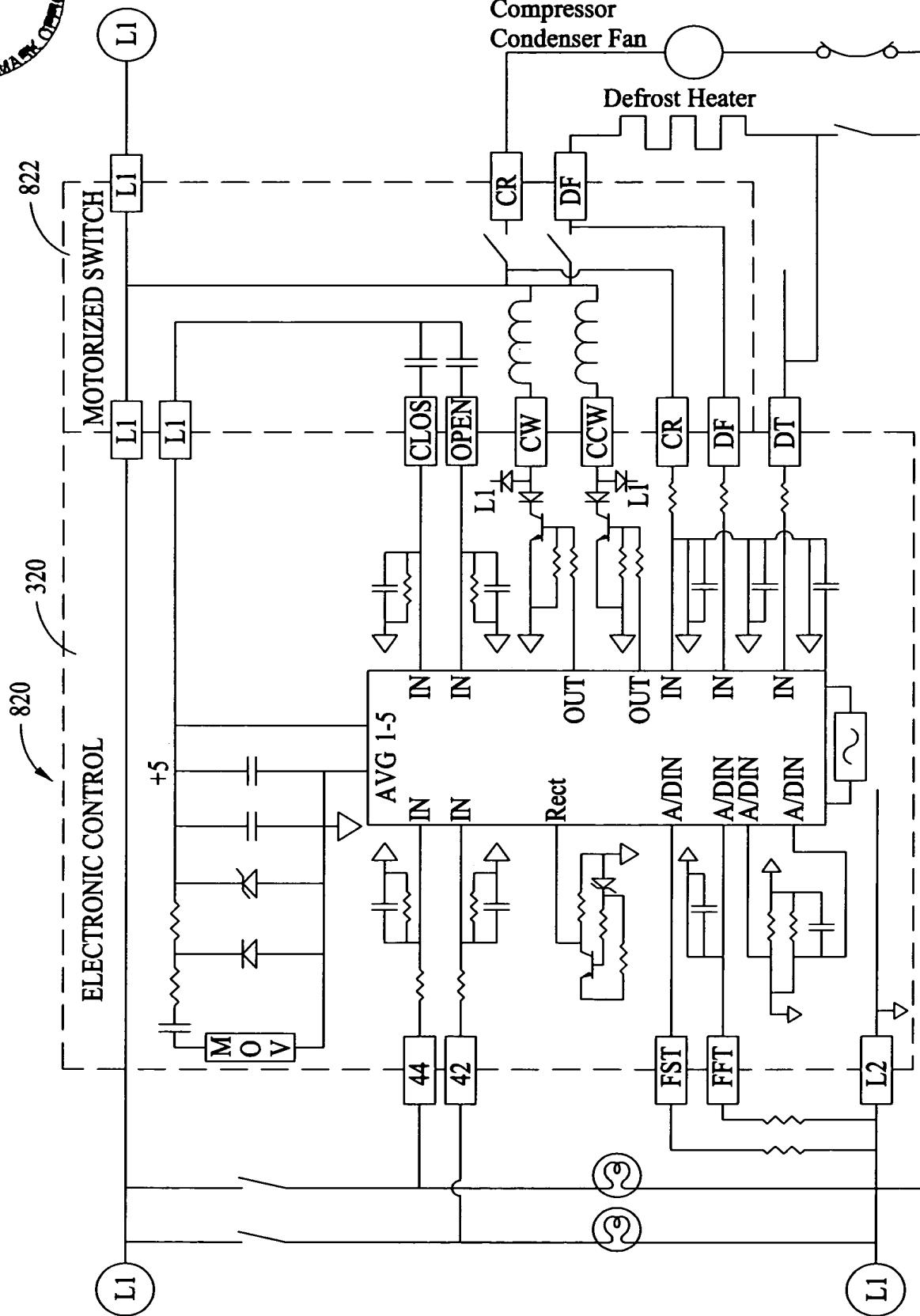


FIG. 49

SEARCHED	O.G. FIG.
CLASS	SUBCL.
BY CRAFTSMAN	

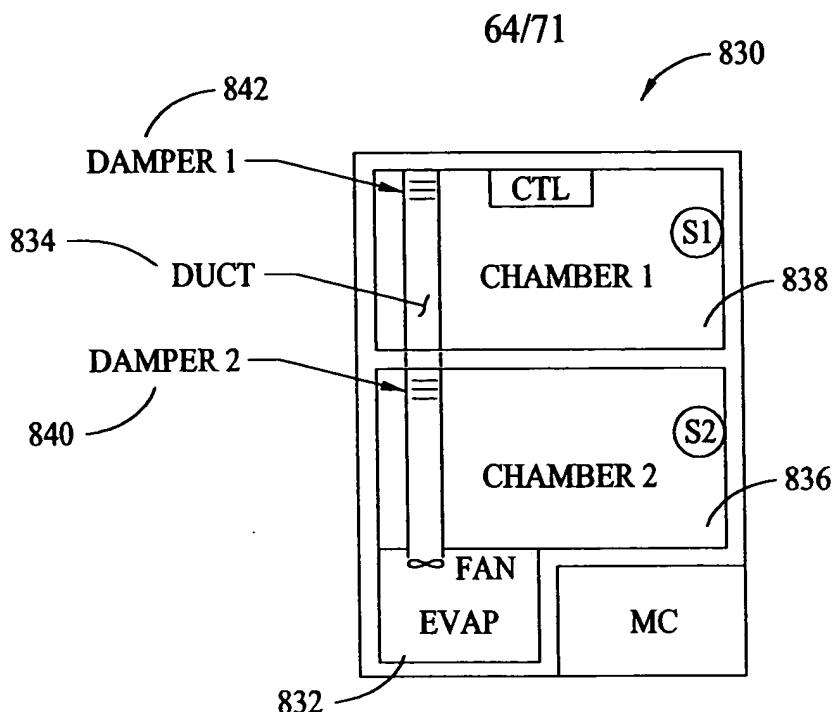


FIG. 50

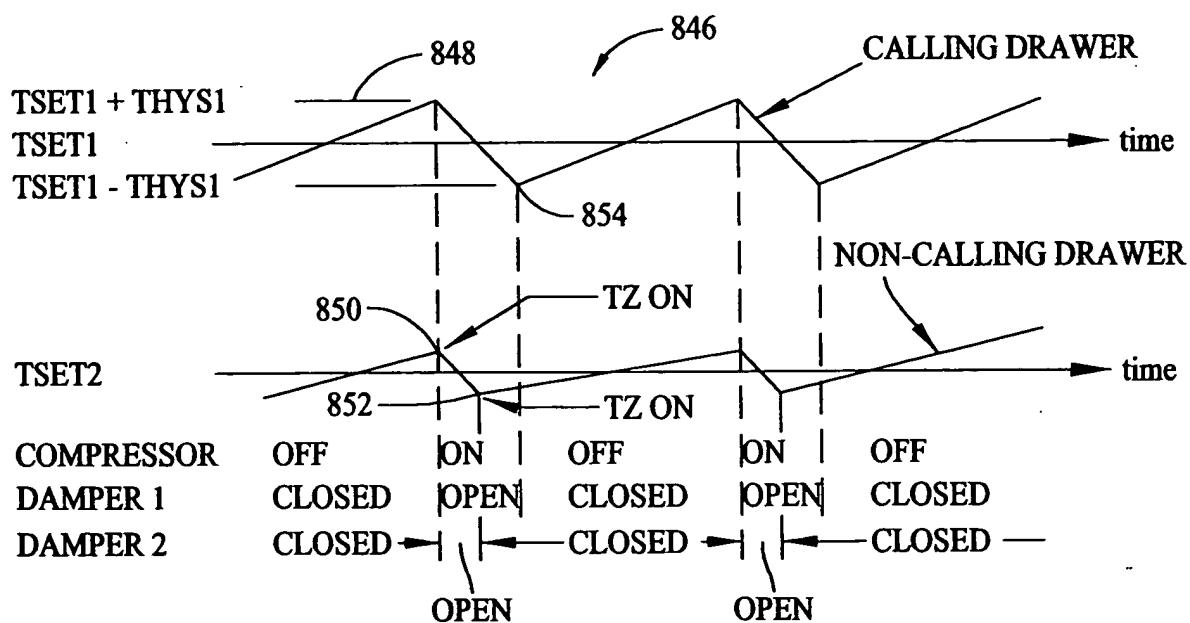
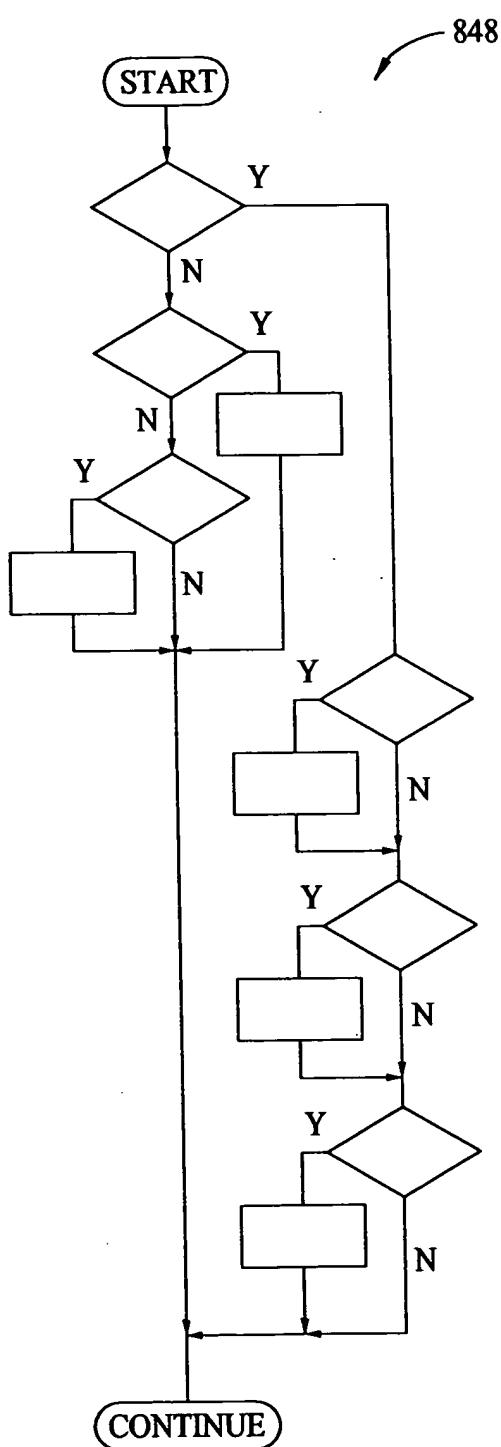


FIG. 51

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COVED	O.G. FIG.
CLASS	SUBCL.
BY	
DRAFTSMAN	

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COMPRESSOR ON?

TEMP CAMB1 \geq TSET1 + THYS1?

COMPRESSOR & FANS \rightarrow ON
STORE TEMP OF CAMB2 AS T2 ON
CALC. T2 OFF = T2 SET - (T2 ON - T2 SET)
SET T1 OFF = T1 SET - T1 HYS

TEMP CAMB2 \geq TSET2 + THYS2?

COMPRESSOR & FANS \rightarrow ON
STORE TEMP CHAMB1 AS T1 ON
CALC T1 OFF = T1 SET - (T1 ON - T1 SET)
SET T2 OFF = T2 SET - T2 HYS

TEMP CHAMB1 $<$ T1 OFF?

CLOSE DAMPER 1

TEMP CHAMB2 \leq T2 OFF?

CLOSE DAMPER 2

ALL DAMPERS CLOSED?

TURN OFF COMPRESSOR & FANS

FIG. 52

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ED O.G. FIG.
CLASS SUBCL.
BY CRAFTSMAN

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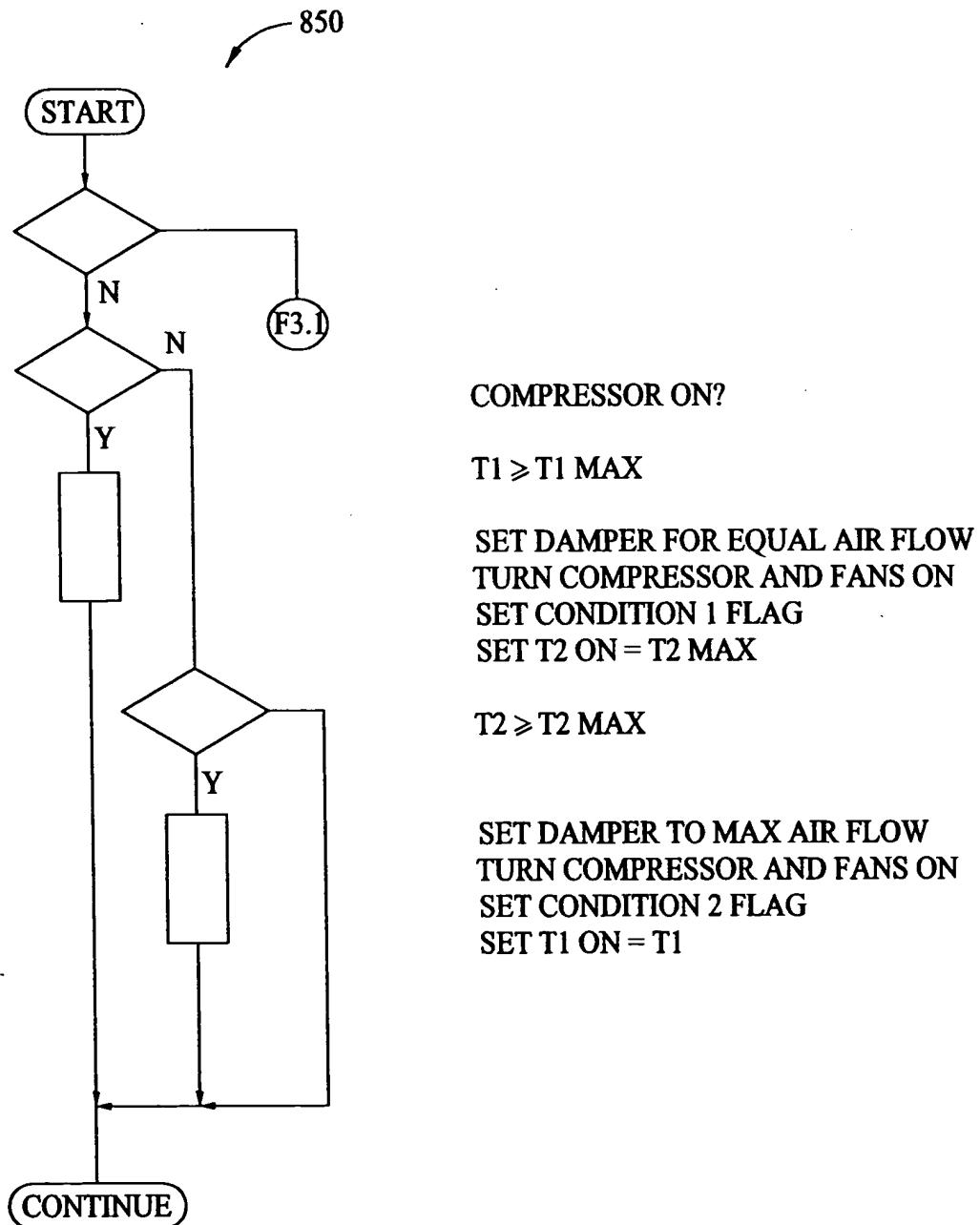


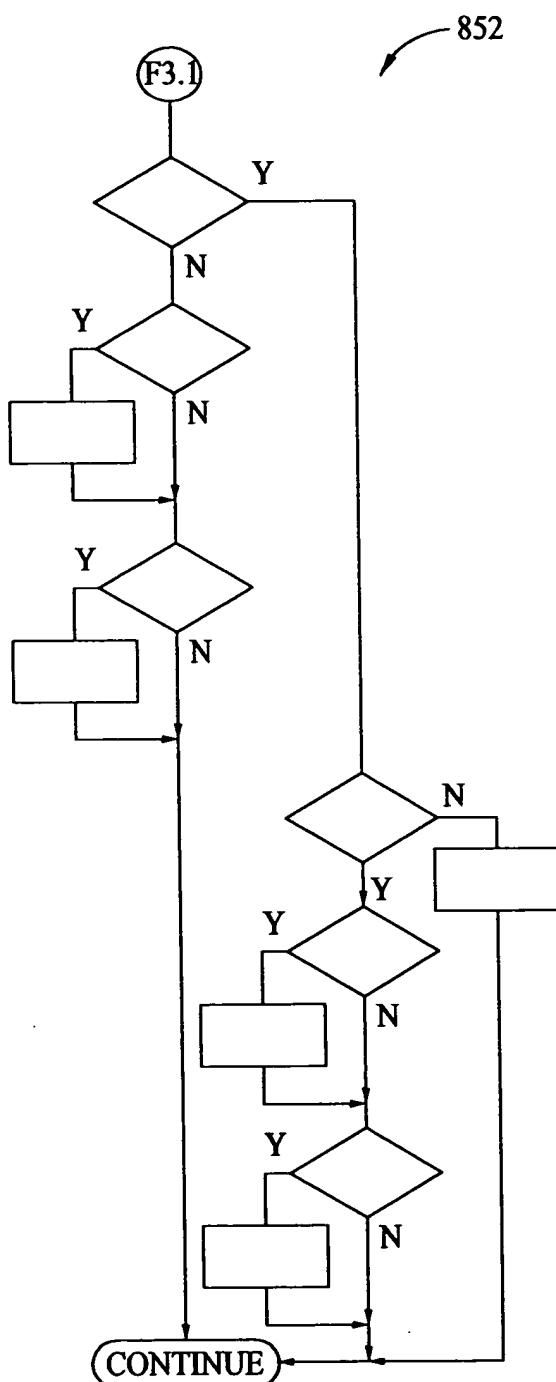
FIG. 53

THE REFRIGERATOR SYSTEM AND SOFTWARE
ARCHITECTURE

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COPIED	O.G. FIG.
	CLASS SUBCL...
BY	DRAFTSMAN

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CONDITION 1 FLAG SET?

$T2 \leq T2 \text{ SET} - (T2 \text{ ON} - T2 \text{ SET})?$

CLOSE DAMPER

$T1 \leq T1 \text{ MIN}?$

TURN COMPRESSOR AND FANS OFF
RESET CONDITION 1 FLAG

CONDITION 2 FLAG SET?

ERROR - RESTART COMPUTER

$T2 \leq T2 \text{ MIN}?$

CLOSE DAMPER

$T1 \leq T1 \text{ SET} - (T1 \text{ ON} - T1 \text{ SET})?$

TURN COMPRESSOR AND FANS OFF
RESET CONDITION 2 FLAG

FIG. 54

REFRIGERATOR SYSTEM AND SOFTWARE
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20VED O.G. FIG.
CLASS SUBCL...
BY DRAFTSMAN

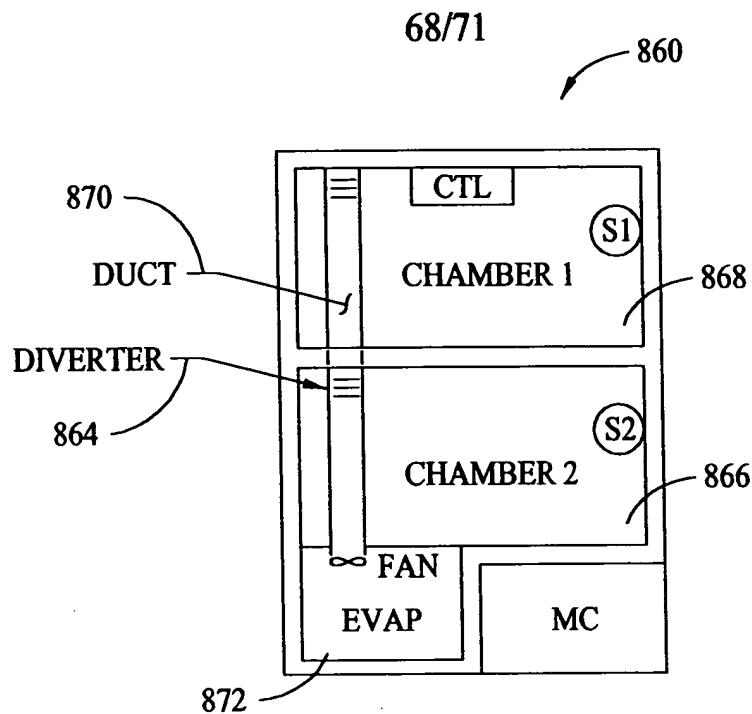


FIG. 55

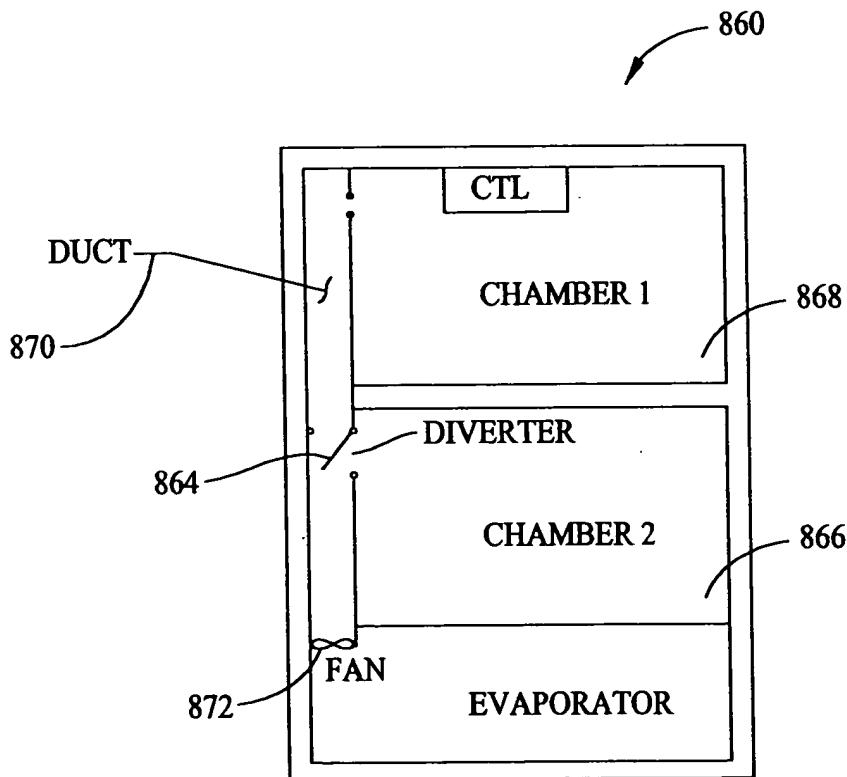
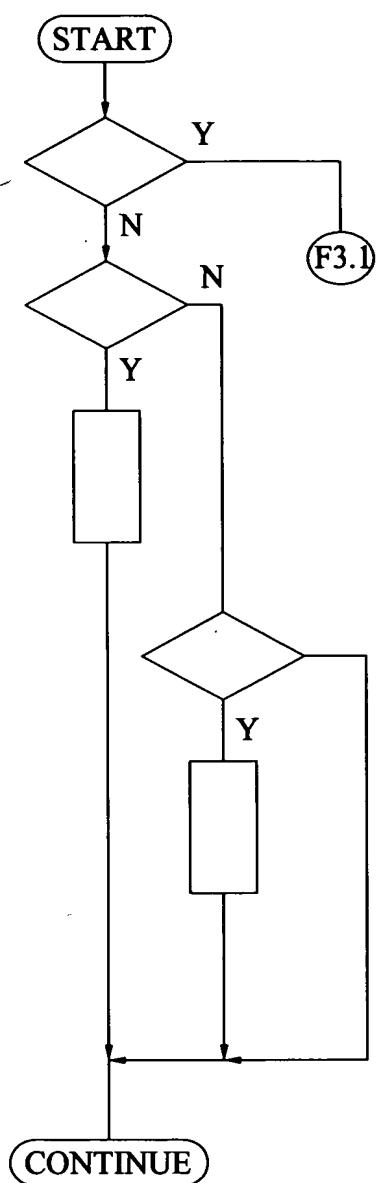


FIG. 56



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SEARCHED	O.G. FIG.
SERIALIZED	CLASS/SUBCL.
INDEXED	BY CRAFTSMAN



COMPRESSOR ON?

$T_1 \geq T_{1\ MAX}$

SET DIVERTER FOR EQUAL AIR FLOW
TURN COMPRESSOR AND FANS ON
SET CONDITION 1 FLAG
SET T_2 ON = T_2

$T_2 \geq T_{2\ MAX}$

SET DIVERTER FOR EQUAL AIR FLOW
TURN COMPRESSOR AND FANS ON
SET CONDITION 2 FLAG
SET T_1 ON = T_1

FIG. 57

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SEARCHED
INDEXED
O.G. FIG.
CLASS SUBCL.
BY
TRAFTSMAN

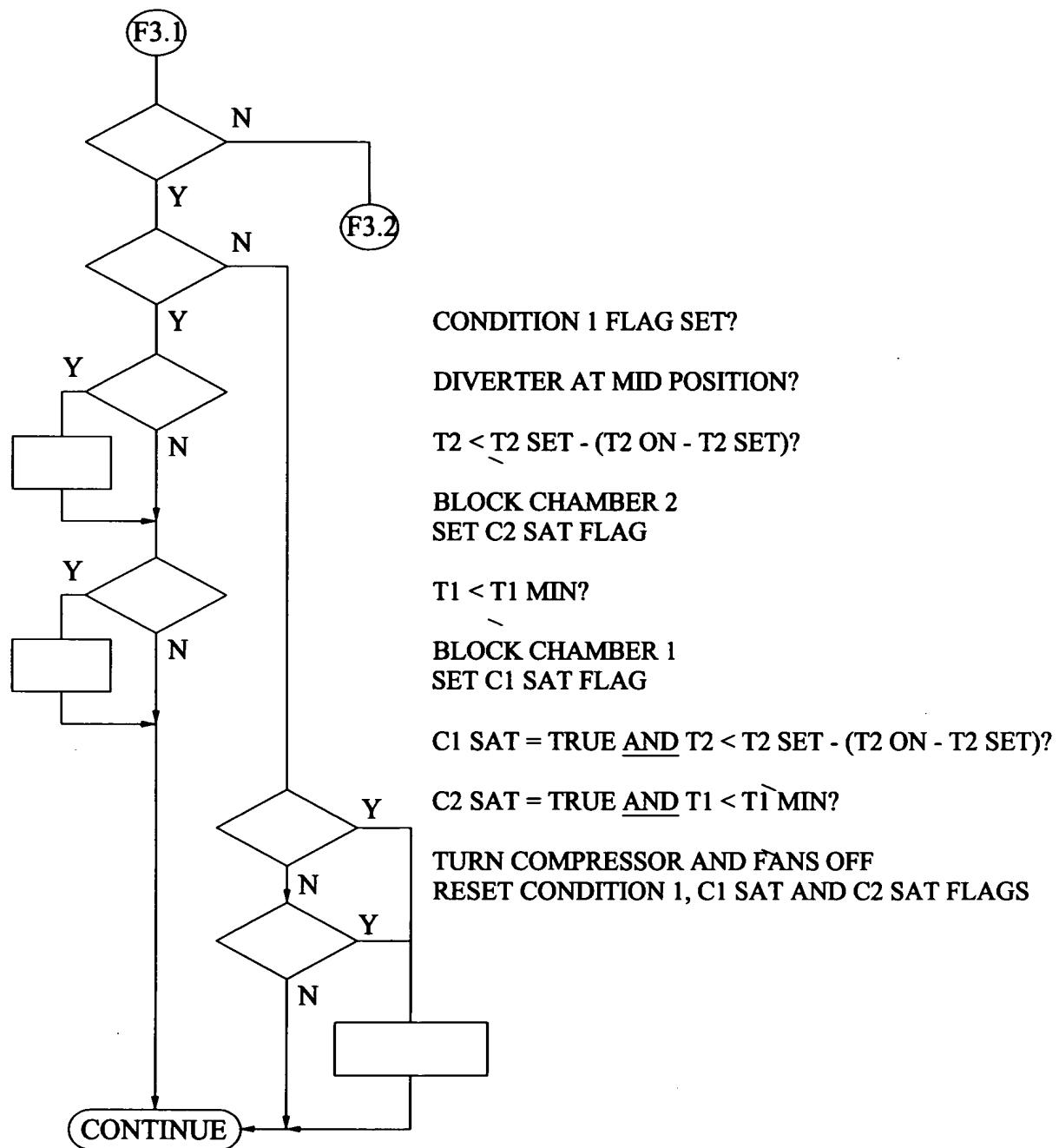


FIG. 58

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OPIE
MAR 24 2003
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SEARCHED
O.G. FIG.
CLASS SUBCL.
BY CRAFTSMAN

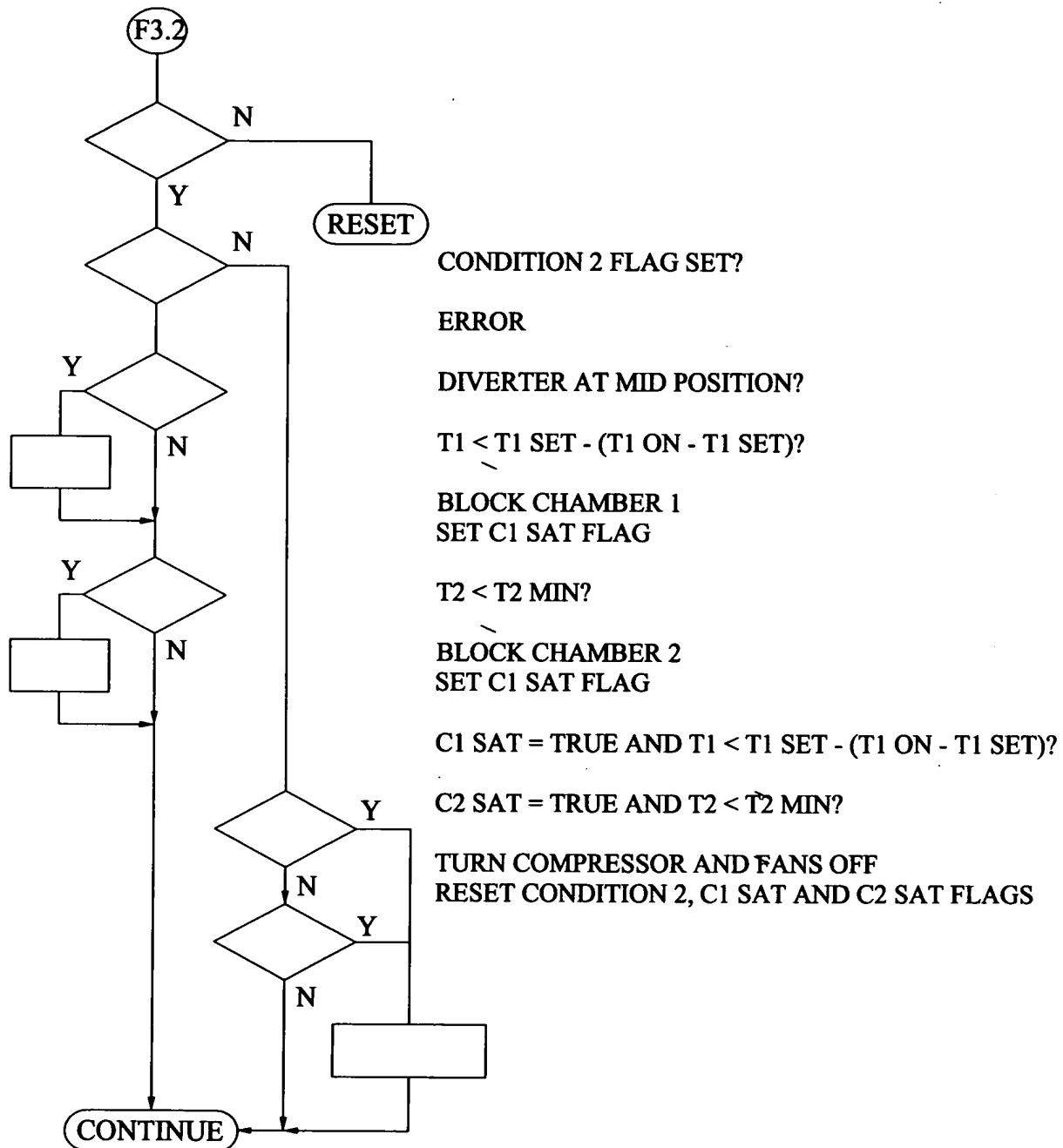


FIG. 59